

American Forest and Forest Life



January 1929

The American Forestry Association

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ADEQUATE FOREST FIRE PROTECTION by federal, state, and other agencies, individually and in cooperation; the REFORESTATION OF DENUDED LANDS, chiefly valuable for timber production or the protection of stream-flow; more extensive PLANTING OF TREES by individuals, companies, municipalities, states, and the federal government; the ELIMINATION OF WASTE in the manufacture and consumption of lumber and forest products; the advancement of SOUND REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.

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IT IS of paramount importance that we of America should appreciate our great forest resources. It is the duty of every citizen, loyal to home and nation, to recognize the forests as a heritage to be honored and perpetuated as well as used and enjoyed in this generation.

Yet, as we review the progress of forestry for 1928, we find more than a stern duty that has been handed down to us. The whole effort is humanized as never before by patriotism, personal loyalty, cheerful activity and boundless generosity.

This happy and liberal acknowledgment of the need of forestry reflects the spirit with which The American Forestry Association was founded more than fifty years ago, and by which it has spread a love of the forests throughout the nation. It is the spirit that is changing the old creed, "What can the forests do for me?" into the new creed, "What can I do for the forests?"

Passage in 1928 of the McNary-Woodruff bill, sponsored by the Association, for forest land acquisition, and of the McNary-McSweeney bill, making possible greater forest research, are tributes to the sincerity and activity of the members of the Association. The launching of the Association's Southern Forestry Educational Project in Florida, Georgia and Mississippi, which is spreading the doctrine of forest fire prevention and forest appreciation to thousands of people, chiefly school children, is recognized as one of the most outstanding undertakings ever attempted in popular forestry education. It was made possible by the spontaneous and generous support of our individual members.

As we turn the page of 1928, let us not be unmindful of the fact that from this spirit has sprung our growth and the outward spread of our activities. Every member can well point with pride to the results of his faith in the principles and policies of his Association. Our record of accomplishment during the year just closed bespeaks co-operation of which your president is genuinely proud as he sends the greeting of—

"Happy New Year!"

Geo. D. Pratt





"The great bird fell, striking the sandspit with a crash"

Yu-Ya-Neri

The Tale of a Canadian Goose and a Sanctuary

BY FREDRICK L. COE

Illustrated by Charles Livingston Bull



T WAS blind instinct that did it. Her wings were like lead but still on she went, the strong pinions beating the air with a faint whistling sound. But the beat was not the customary rhythmic motion. She was tired—so tired. . . . Only one thing in all the world can drive any living thing, be it bird, beast or man, as the big

Canada goose was driven and that is fear.

Early that morning she and her mate had picked up from a slough in the great rice marshes of the Santee where they had passed the night and after circling once to gain eleva-

tion the pair continued north on their annual pilgrimage to the Canadian muskegs of Saskatchewan where their nest would be made in that great breeding place of migratory fowl. Scarcely had they got under way when to their attentive ears came the honk-honk of a gander from below. If it had been the call of a goose, the big gander would have paid little or no attention; he had his mate and of all birds the grey Canada goose is the most constant. But the call was so insistent that he hovered irresolutely. There was something about it that he could not understand. With a short turn he planed down toward where he saw the other

out on a small sand spit close to a clump of wild rice.

Strangely enough the bird on the ground did not rise though he spread his wings and sent out his hoarse call at the sight of his kind above. Then when the gander was only a few rods over the swamp with wings set to light, his keen eyes suddenly detected something suspicious in the clump of feathery wild rice. With a shrill honk of warning he endeavored to rise but it takes time for a thirteen pound bird to get up speed notwithstanding powerful wings.

A blinding crash and the big gander checked in his flight. A frantic effort to veer away, the wide pinions beating wildly. . . . Another crash and the outstretched wings ceased their motion, set for an instant and then collapsed. The great bird fell, striking the sand spit with a crash that so frightened the captive decoy that it all but tore loose. Its terrified honks no longer had the unconscious Judas-like appeal that had lured the other to its death. But its calls were punctuated by several more shots fired in rapid succession as the man emptied his remaining shells at the gander's mate. He was too far off to kill yet the big shot struck with force enough to so stun her that she dropped heavily into the swamp. There she lay, honking wildly, and beating the water into a smother of foam.

One thing alone saved her; the fact that the morass just beyond the sand beach was too deep to allow of crossing. All the hunter could do was to cram shells into his gun, rush for his duck boat concealed near by and pole it through the thick wild rice toward where the second bird had fallen. But before he could reach her she had partially recovered from the shock and had picked up. As she winged heavily off, the futile charge he sent after her only hastened her flight. He watched her for a while until she disappeared and then turned back to where the big gander lay stretched out at full spread close to the still terrified decoy.

All day the goose flew on, never stopping for food or rest. She followed the great highway of migratory birds; straight up the coast to Chesapeake Bay, then south to Long Island crossing high above Shennecock Bay, not stopping there as usual, but continuing on over the Sound. And then instead of the usual route up the Connecticut River she took the more direct line over New Haven, past towering Mt. Carmel, there turning to the North and West straight for the Laurentian highlands.

But there is a limit to strength; even the gray Canada goose cannot keep on indefinitely. She had been flying steadily for nearly twelve hours and had covered close to seven hundred miles without a stop. Now with the sun just above the horizon she commenced to falter. Her flight no longer had the whistling speed; more and more frequently the wings would lose a beat. But still fear drove her on. At length just as darkness was falling the gleam of a sheet of water became visible. Perhaps she saw it or perhaps she would have dropped anyway. Too spent to continue further she swung on over it, kept on a ways and then pitched down heavily into a little pond surrounded by swamps. There she lay, utterly exhausted, wings outstretched, breathing in great gasps, an easy prey for any carnivorous animal.

As it chanced the goose had landed in a pond known locally as Cranberry, a part of The Litchfield and Morris Bird and Game Sanctuary in upper Connecticut. Here she was at least safe from her human enemies. But those of the wild respect no man-made laws; theirs is the age-old law of claw and fang. The following morning, the goose started to continue her flight. But upon attempting to rise she found that the strain of the long flight following the numbing effect of the shot which had apparently struck the wing bone had rendered her left wing practically powerless. After several attempts she settled down to make the best of things, the first requisite being a location for her nest. That was a matter of great care. A goose does not decide this all-important matter without due consideration. It must be close to the water though above any possible flood; well screened, of course, yet not in such thick brush as to impede a hurried entrance or exit in case of emergency. For days the goose searched, rejecting place after place. At last one was found which seemed to answer all requirements.

Close in to the mouth of the sluggish brook which drained the pond was a large muskrat house. It was unoccupied and had been since late winter when a poacher had broken a hole through the thick wall and placed his sets inside in defiance not only of Sanctuary rules but ordinary trapping laws which forbid the setting of traps inside a "rat house." In the space of a few days he had taken out seven of the tribe of Musquash. But the sudden spring break-up prevented him from getting out his traps which still remained in the house. Thus it was that the goose found the muskrat house empty, no other rats having taken possession. So the goose set to work building her nest. At the end of a week it was practically completed. The huge saucer-like structure was strongly constructed of large twigs beneath while the inside was soft as silk and the deep depression allowed plenty of room to hatch out the precious eggs in both comfort and safety; its location afforded a vantage point from which she could watch in all directions. Even if not in the far reaching muskegs of Saskatchewan, the goose was satisfied.

It was not until after her third and last egg was laid that she had her first sight of the man she was to see so many times and who entered into her life in a never-to-be-forgotten manner. The weather had been rainy and cold, a raw wind with a hint of snow was sweeping down across the pond, causing the anxious goose to sit close over her eggs to avoid any possibility of chill. Suddenly her long neck went up and her keen eyes peered back into the swamp. She herself had heard no suspicious noise but from some mallards nesting near by a disturbance had arisen not loud or terrified, but still enough to warn that something out of the ordinary was happening. The goose was all attention. Soon an ominous crashing was heard and a moment later the high cranberry bushes parted and a man appeared.

As a snake draws back so did the high raised head on the long neck disappear behind the rampart of the nest. Tall and strongly built, the man moved lightly, leaping from bog to bog and steadying himself by an occasional touch on tamarack or black spruce trunk. The goose crouched yet

lower. All her old fear came surging back with the memory of another man and her mate crumpling up in mid-air. She all but started up, injured wing notwithstanding. Only the protective mother instinct restrained her. These precious eggs she must guard at all hazards.

This was the goose's first sight of the man she was to see many times in the next few weeks. Though of course she could not know it, he was her best protector as he was of all the birds and animals in the Sanctuary, for he was the game keeper who spread food for them in winter and early spring and kept down vermin, hawks, owls, blacksnakes, mink and other killers. The inhabitants of the wild soon come to know their friends. It takes time but it is none the less certain. So it was that the goose gradually lost much of her fear of the man. Intelligent beyond all other feathered folk she saw that the mallards ceased to pay scarcely any attention to him, except eagerly to consume food which he threw to them.

Whether the gander takes his turn sitting on the eggs is a much mooted question. But whether he does or not matters little as our goose had to attend to it herself. And as it chanced to be an exceptionally cold, wet spring she could find little time away from the nest lest the eggs become chilled. Consequently her food was scanty and poor. Moreover the fact of the long continued rains prevented her from dusting, that one sure remedy for ticks. As she grew weaker her quests for food became harder and harder. It was upon one of these trips that the first loss occurred.

While the crippled pinion had not yet entirely healed yet the goose could fly almost as well as ever for a short distance. So it was that as she winged back over the pond and neared her nest she saw something dark and snake-like dart over its edge and disappear. Frantic with fear, she swung down to discover an egg with a hole neatly bitten in one end and the contents sucked out by a hungry mink. Only her opportune arrival had saved the remaining eggs. Well she knew the habits of the mink; once it had tasted eggs, it would never rest until it had the last one of them. She must spend little time away from the nest in the future. Later she frequently saw the round black head with its ferocious expression of malignancy swim close up to the rat house but even its cold courage knew too much to dare the bone crushing smash of a goose's wing backed by the javelin-like drive of its sharp beak to attempt an open attack. So away it swam, biding its time.

For days the goose scarcely left her nest but at last, driven by hunger, she winged away, returning shortly only to find that in her absence the nest had again been rifled and but one egg remained. She sensed a different enemy this time; there was none of the tell-tale musky odor of the mink. Furthermore the egg had been broken and the shell scattered



Though held fast by one foot, the smashing power of the goose's free wings again and again sent the big turtle tumbling back as it tried to clamber up

about the nest. Also one side of the nest, strong as it was, had been smashed down as though something heavy had passed over it. The goose was mystified, for it was beyond her knowledge or instinct. But whatever it was she resolved not to leave again until the one remaining egg hatched.

That night it rained, a sudden late spring storm, and the water rose so rapidly in the main river a scant half mile away into which the slow flowing brook emptied that a strange phenomenon occurred. The brook reversed its flow and the flood backed up into the pond. By daylight the water had risen until it lapped the rat house below the base of the nest. Frantic with fear, the goose attempted to repair the bottom layer. In doing so she stepped through the hole in the house and, as chance would have it, into a trap left by the poacher. For a few moments, she struggled wildly with all the terror of a creature of the wild. Her hoarse honks resounded through the rain soaked swamp and woods, the powerful wings beating frantically. But the trap had clamped firmly on the ankle bone and held fast.

For a few minutes the goose continued to struggle; then, realizing the uselessness of it, she desisted. Half sitting on the sloping side of the 'rat house, one leg in the grip of the trap while the other clutched the thick edge of the hole, she settled herself to await the next drama in the turbulent life of the wild. And it was not long in coming. Above the steady drip of rain-soaked tamarack and spruce, there suddenly issued a sound which caused the ever-vigilant goose to raise her head. It was but a faint swish as of something swimming. Even as she stretched her neck to look over the nest it changed to a loud crashing as though a heavy body were forcing itself through the flag and cattails surrounding the house. Then she saw it—a vision horrible enough at any time, but in her helpless position nothing less than terrifying; a thirty-pound snapping turtle. It is said that of all creatures the snapping turtle alone does not know the meaning of fear. Once it sets out on a course death alone can change it.

Brave as was the goose yet her heart sank at the sight of the huge tanklike creature smashing its way through the sedge straight for her. It is small wonder that she frenziedly tried to free her imprisoned foot, wings splashing madly, and her hoarse honks so loud that they carried to a camper at the distant lake. But as implacable as fate, the turtle came on. Despite the hopelessness of it, the goose gave battle as fearlessly as any warrior of old. For a while it looked as though the bird might succeed in repelling the boarder as the steep slope of the "rat house" was so slippery that it impeded the grim oncoming of the snapper. Held fast by one foot, nevertheless, the smashing power of the goose's free wings again and again sent the big turtle tumbling back as it tried to clamber up. But the struggle was too uneven to last. At length one hind foot caught in a crevice and up surged the armored body, its great beak snapping like a trap and loose feathers torn from her wings sticking out from it in a grotesque manner. It would be only a matter of seconds when it would close on a wing bone or the supple neck.

Suddenly the tall figure of a man swung in sight. Fighting desperately as she was, the goose hardly gave him a thought while the one-track mind of the turtle never even noticed his approach. Taking in the situation at a glance the man did not hesitate; up rose one arm, something steely blue gleamed in the gray light, steadied and a sharp report crashed out. For a moment there was no sign of movement from any of the three. Then very slowly the turtle's big head withdrew into its shell, a few feathers still gripped in

the vice-like jaws. Over tilted the body and into the water with a splash. The soft-nosed bullet from the revolver had ranged down through the neck and into the soft inner body, killing it instantly. Utterly weary as was the goose, she seemed suddenly galvanized into new life. She thrashed about wildly, squawking piteously the while, trying with all her power to free herself. But all in vain.

Almost at his first glance the game keeper had realized her plight. But how to free her without injury was another matter. Then the memory of how as a boy he had watched his grandmother pluck live geese came to him: When a stocking was slipped over their heads even the most truculent hissing gander would quiet down immediately and remain so until it was removed. That was what he'd do. Taking off his hunting coat he threw it over the goose. It was only a matter of seconds to follow down the leg to the trap, press in on the springs and release the imprisoned limb. Assuring himself that the bone was not broken, he removed the coat and stepped back.

For some time the goose remained in the same position, too tired to move. Probably the leg was so numb from the grip of the trap that she never knew it had been released. A tentative movement and she realized her freedom. Then the man witnessed something that he never forgot. Without a moment's delay she scrambled awkwardly over the rim of the now ruined nest. There she commenced to look for her last remaining egg, all else forgotten, "talking" in low hen-like cluckings entirely different from her usual discordant honking. But it was nowhere to be seen, either broken in the furious struggle or fallen into the water. A short search convinced the goose of its loss. Turning toward the men she uttered a low cluck—so plaintive that he fairly felt her sorrow. Suddenly she stopped, head turned to one side as though listening. The man listened, too. From high above came the clear call of geese.

As the harrow formation swept over she stood up, wings outstretched and gave a shrill answer. So near were they that the gamekeeper could plainly see the heads turn downwards. Again she called and at their reply suddenly took wing, sweeping out over the pond and then rising steeply after them.

Standing there in the rain-soaked swamp in the gray light of dawn with the tamaracks and spruce rising out of the mist like sentinels the man raised his arms in the Indian gesture of farewell, at the same time uttering the phrase with which every Indian story teller of the Iroquois ends his tale: "Yu-ya-neri. Na-ho." (It is well. I have finished.)



Arkansas' Forest Paradox

By FRANKLIN W. REED

IN most states the lumberman has been condemned when he destroyed his forests. In Arkansas he is condemned because he is attempting to preserve his forests and keep them permanently productive. Here is a forest paradox which I asked a citizen of the state to explain.

"So far as recognition of forests as a state asset is concerned," he replied, "Arkansas is suffering from hill-billyism. Now the hill-billy is the man who lives back in the sticks, as we sometimes call the timber sections. As a rule he owns a few acres of land, a mule, a couple of shaggy hounds and a few head of stock which he grazes in the open timber. His idea of the millennium seems to be the day when all the millions of acres of forest land surrounding him will have been converted into prosperous farms. He, therefore, looks upon the forest as an incumbrance on the face of the earth. He does not know that in Arkansas, as in other forest regions, farming does not pay except on the most fertile of soils and under the

most favorable economic conditions. The fact that within his own state, thousands of acres even better than those still in forests, have been cleared and cultivated and their owners

forced to abandon them because they could not make a living apparently fails to impress him or teach him a lesson. Any suggestion or effort to perpetuate the forests he views with suspicion and as a scheme of the lumberman to block the agricultural development of the region.

"His views have been seized upon by certain politicians and their constituents to build political fences, with the result that the inflamed opposition developed has been strong enough to defeat any efforts of constructive forestry legislation. Indeed it has reacted unhappily upon the political fortunes of some



Arkansas' rich hardwood forest—this pictures natural conditions of forest growth, where fire has not entered to retard and destroy. The volume of this stand is approximately fifteen thousand feet an acre—a growth which can be duplicated on any good hardwood site if properly protected and unburned

of the members of the state legislature who have had the vision and courage to sponsor state measures looking to the protection and restoration of Arkansas' vast forest resources. These constructive efforts have even been characterized as

ill-concealed attempts on the part of the lumberman and large land owners to escape payment of their taxes. The members of the legislature who have had the courage to support these measures have been pictured as the paid hirelings of capitalists. The threat has even been made that the timberland owner should be penalized with a heavy tax in order to force him to expedite cutting the remainder of his timber to make room for the farmer."

That the legislative body of a state, otherwise progressive, should be circumvented in the preservation and development of one of its most important natural resources by such provincial ignorance and suspicion is perhaps the strangest part of this paradox. Arkansas maintains departments and commissions to aid and foster her other basic industries—her agriculture, her mines, her manufactures and her fish and game. She is rapidly expanding her network of excellent state highways and in other lines of public progress, excepting that of forestry, she ranks with the best of her sister states.

Arkansas has never yet officially recognized the importance of her forest resources in relation to her industrial and economic well-being. Of all the timber states of the Union she is the only remaining one which has no state forest department to aid her forest owners in preventing forest fires or to educate the people in improved timber growing practices. Her state policy is one of mining



Young shortleaf pines, illustrating how Arkansas pine lands, if protected from fire, would grow annually a crop worth from six to eight million dollars

est resources, of her forest industries, and of the wealth which they represent, the far-reaching effect of the state's do-nothing-but-mine forest policy is driven home. For many years Arkansas' forests have been producing each year one billion and a half feet of lumber—one billion feet of pine and five hundred million feet of hardwoods. In addition

the forests in that she requires her forest owners to pay not only an annual land tax but also a severance tax on every stick of timber which they cut. From this latter tax, the state derives an annual income of well over \$100,000 but instead of using this income to perpetuate the resource which yields it, she is, figuratively speaking, killing the goose that lays the golden egg. Forest owners who are attempting to protect their forests from fire and to make their forest operations a permanent industry receive no help or encouragement from the state. And rendering no state aid toward forest protection, Arkansas loses all claim to Federal aid in fire protection under the Clarke-McNary Act.

When one contemplates the extent of Arkansas' forest resources, of her forest industries, and of the wealth which they represent, the far-reaching effect of the state's do-nothing-but-mine forest policy is driven home. For many years Arkansas' forests have been producing each year one billion and a half feet of lumber—one billion feet of pine and five hundred million feet of hardwoods. In addition they have furnished an uncounted amount of high value veneer logs, of tight cooperage stock, and of railroad ties. Of recent years the pulp and paper industry, attracted by the abundance of rapidly growing pine, has made a start within the state. One plant alone turns out every day 150 tons of kraft paper, made of pine wood which it



These shortleaf pines at fifty-one years old will soon be ready for cutting. The stand is fully stocked and the trees are from 80 to 90 feet high

buys from the surrounding farmers and small timberland owners.

The lumber industry itself, including cooperage stock and veneer manufacture, employs 27,201 workers of all classes, with an annual pay roll of \$25,477,434, according to the United States Census figures for 1925. The subsidiary wood-using industries such as independent planing mills, box, furniture and coffin manufacturers, give employment to 4,520 additional people with a corresponding pay-roll of over

lumber industry of Arkansas also pays the railroads an annual freight bill of \$1,703,897 for the transportation of its products to the point of consumption and this means additional employment of the railroad workers.

The forest industries of the state, today, rank well toward the top in the volume and value of their products and in the number of people to whom they give steady and remunerative employment. They can be expanded to two and even three times their present proportions and maintained at that



Arkansas, a great natural forest state, should aid her forest owners in placing their forest operations on a permanent basis and not continue to kill the geese which lay the golden eggs. Legislation is needed to protect and increase this heritage of wood. These are mature shortleaf pines, in an even-aged stand averaging one hundred and ten feet high

\$4,000,000. The lumber industry, in addition to its payroll, expended in 1925, \$32,807,144 for materials produced by other industries, such as fuel, electric current, logging, mill and shop supplies and equipment, as well as for the purchase of stumpage. These industries in turn are thus enabled to give employment to thousands of additional workers.

It is a commonly accepted fact that in all industry, out of every dollar received by the sale of the manufactured product, seventy cents is expended in wages for its manufacture and distribution. The value at the mill of the annual production in Arkansas of lumber and allied products is computed to be \$73,357,576, which means a total payroll of over \$51,350,000 and the support and comfort of more than 50,000 citizens and home owners in the state. The

scale of production for all time if the forest lands of the state are adequately protected from fire and their owners are given support and encouragement from the public in the introduction of improved methods of timber cutting and of restocking their lands with new growth.

Next to Oregon, Arkansas has the largest acreage of productive forest land of any state in the Union—21,500,000 acres, of which less than 1,000,000 acres, in the rougher, mountainous sections, are included in the National Forests. The remaining 20,500,000 acres are private property. Nine million acres, lying mostly west of the Mississippi bottoms and south of the Arkansas river, comprise some of the most rapidly growing pine lands of the whole United States. A prominent forester of the state has computed that these lob-

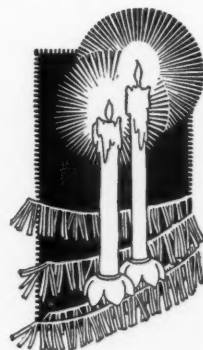
(Continuing on page 36)



The Lost Christmas Carol

By 

ERLE KAUFFMAN



TWILIGHT, diffused over the great white forest, made all outdoors an unsolvable mystery. The facing horizon of snow and spruce, the pall of fathomless fog overhead, the cold, brisk air changed Christmas Eve to a time that seemed ghostly and haunted.

An early moonlight deposited a faint dust upon the snow-drifts above Thoms Pond, so that the cabin there had the same drab nebulosity of a ship in a drifting fog. A man was leaning against the wall of the cabin. His hands rested upon the frosted logs and he seemed to be measuring the distance from the snow-dimmed trail to the point where the ice dropped off to the pond.

Although his lips did not appear to move, a rough whisper escaped them. "Git a wiggle on, Red; I'm hearin' things."

From somewhere inside the cabin came a chuckle, almost inaudible, as Red paused in his task of slashing the mattress on the single bunk. The soft clucks were not brought about by the complaints of his companion on the cold outside, but by the discovery in the mattress of a soiled package, awkwardly tied in a faded newspaper. With nervous fingers he tore into the wrapping and examined the contents. Then laughing mirthlessly, he moved, with remarkable agility, towards the door. Outside he chuckled again, and why not?—he had just invested ten minutes of his time and retired with \$1,800 in worn bills, the life savings of old Dad Conway. Not even the most observant wanderer, pick-

ing his way through the lighter drifts under the spruce, could have seen the outline of Red and his companion as they dissolved into the fog and closing shadows of night. Nor, for that matter, could one have seen the figure of a solitary stranger, who, protected by the same patch of fog, and by a snow-laden thicket of young spruce, had witnessed this strange bit of drama at the snowbound cabin.

A queer little smile twisted the lips of the stranger as he made his way out of the thicket and stood gazing curiously at the cabin. So here was where Dad Conway lived? Dad, the renegade of Thoms Pond—the weathered old hermit of a thousand sinister stories that found their way even into the quaint streets of Boston. So this was a madman's lair of iniquity, where plots against society and the government were hatched with cunning and executed with reckless abandon—that is, if one were to accept the stories that drifted out of the White Mountains.

Numerous and disastrous forest fires on the federal forest reserve adjoining the recluse's little domain had been laid to him; it was common gossip that he killed game whenever he pleased and wherever he pleased, with little regard for the laws of man or nature; there were those who accused him of dynamiting the Hillport Dam; and more than one government official openly attributed to him the burning of Thoms Creek ranger station. But to prove these accusations was another question. It had never been done. The old hermit

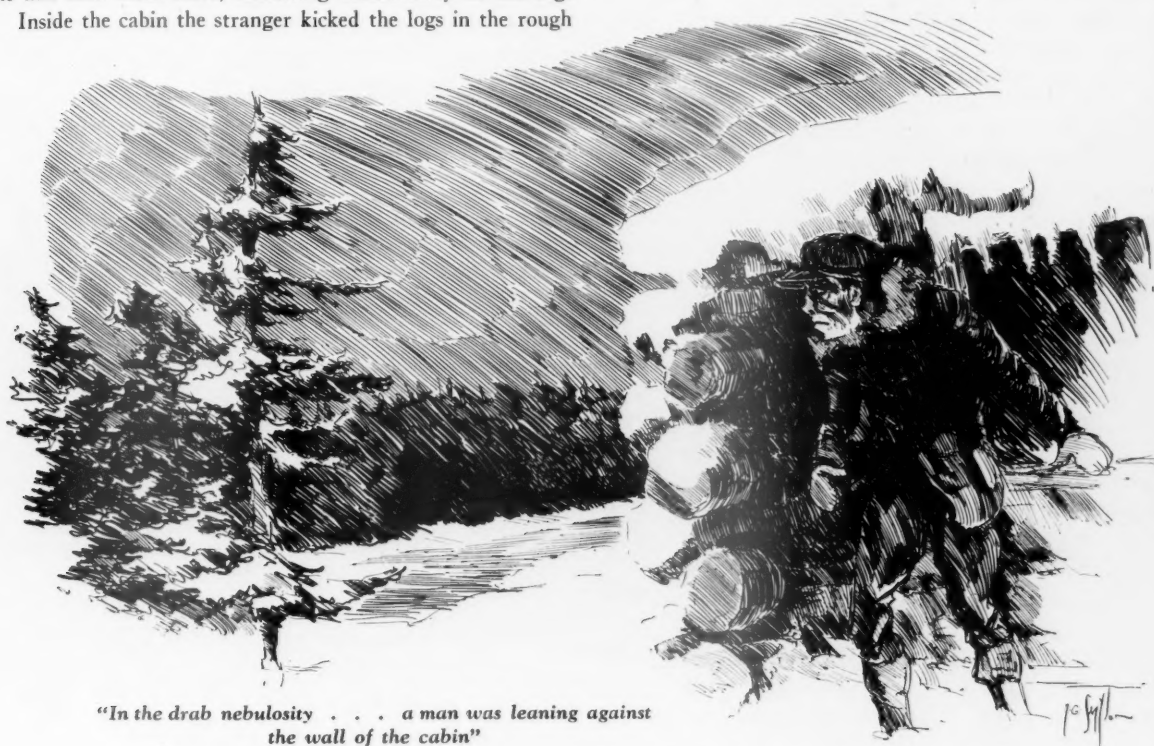
consistently maintained a defiant silence whenever crimes were laid to him, a silence that demanded proof—proof that was never conclusive enough to penetrate the door of his cabin. Once a ranger had entered—without the proper formalities—and found himself face to face with the business end of a rifle barrel.

All of these things the stranger knew as he smiled grimly at the bleak cabin on this Christmas Eve. But, too, he knew that the cabin at that moment was unoccupied. From his position in the spruce thicket he had witnessed the old hermit trudge away on his snowshoes. From the same position he had watched two dark forms, blotted in the diffused twilight, make their way up to the cabin and force entrance. Then he had seen them leave, muttering incoherently in the fog.

Inside the cabin the stranger kicked the logs in the rough

the old man. Perhaps there was more to these stories that drifted into Boston than appeared in the prelude. Quickly he adjusted the mattress on the bunk and placed the blankets over it. The uncertain consequences should the hermit suddenly return and find him there, standing before the violated mattress, were not to his liking.

Content with this arrangement he moved to the far corner of the room which lay cloaked in semi-darkness. Something there had caught his attention, and awakened that in him which ordinarily slumbered. It was a scarlet thread in a bit of dull old tapestry thrown carelessly on a table. He removed it almost tenderly, so great was the fascination, but before he could examine it his hand began to tremble



"In the drab nebulosity . . . a man was leaning against the wall of the cabin"

fireplace into a soft flame, and looked about him. The single room gave the odd impression of a mixture of a recluse's hovel and an artist's studio. Antlers and skins lined the walls, with the exception of that portion above the fireplace, which was strung with guns and knives, weapons of the outdoorsman. That the hand of an artist had placed them there was apparent to the intruder. In the center of the room was a long table of white pine, hand carved, and an antique of a chair reposed invitingly by it. As the stranger's eyes wandered beyond the chair they rested upon a disheveled single bunk. The sight of the violated mattress instantly offered a solution to the visit of the formless blots that had forced into the cabin under the protection of the fog, and it required but a moment to form conclusions.

So! There were other birds of prey hovering over the forest. The stranger felt a surging wave of sympathy for

so violently that he bit his lip in an attempt to suppress it. Under the tapestry a violin the color of old Burgundy lay revealed.

Instantly the stranger was oblivious to the cold atmosphere in which he stood; the faint flickering of the flames as they arose and fell in fretful action went unnoticed. The weird shadows that danced across the room were absorbed by the blackness of the chilled corners.

A Stradivarius! Wrapped recklessly in a bit of dull old tapestry, in the snowbound mountain hovel of an outcast. The stranger's senses revolted at the astonishing revelation. What manner of man was this who had brought the wrath of society upon his head, and who sought the solitudes of the deep, snowbound forest with the king of all fiddles?

He thrummed the strings with his thumb. He struck up a soft melody but did not finish it; then a bit of a dance;

minors; sketches, with something of a tragic note running through them. Then the music died and the uninvited fiddler stood as a stone image, the Stradivarius nestling lovingly under his chin. A happy smile slowly broke over his features and the bow was brought down in a gentle arch. Notes of a Christmas hymn floated magically into the dark corners, so low that they were lost before other notes reached them. Christmas! Why not? Why should he not fill the silent forests with Christmas melodies until even the furred creatures buried beneath the snow were instilled with the spirit? Was this not Christmas Eve?

Then he played, the rich, sonorous tones of the Strad vibrating through the cabin—pouring out into the white stillness of the snow-laden spruce. He ran through all of the Christmas hymns and carols he could recall, repeated some, and then brought his bow down in a flourishing sweep.

As the last note faded away the stranger stood motionless—a bit startled. An added note, irregular breathing, behind him, like the unsteady pants of a wounded deer, took possession of him, and brought back the realization that he was violating the home of one he did not know—a recluse who menaced, perhaps, his own life. He stepped back a pace and was about to turn when an aged, but astonishingly refined voice came out of the darkness.

"A Merry Christmas, sir. You have the touch of a Heifetz."

Blundering fool! Why had he allowed the feel of a Stradivarius to rob him completely of his wits? What in him had succumbed to a pathetic hunger for music, so raptly that the play had been taken from his hands. Loneliness, yes; months of separation from that which his being demanded. Red-faced and confused he turned to face the possessor of a voice that might have belonged to a Boston studio.

"I hope you don't mind," he stammered in apology. "The snow—your warming fire—the Stradivarius—"

No idol's graven face was ever less indicative than the hermit's. Standing in the dark shadows, bundled in a ragged cloak, still holding a rifle under his arm he presented a picture that froze the blood in the stranger's veins.

"You are welcome," he interrupted, without visible movement. "Play again—softly—the 'Dance of the Reindeers.'"

And the stranger played, as he had never played before, overcoming his bewilderment. Then he broke into forgotten melodies; chords; nothing ever began, nothing ever finished. When he lifted his bow and looked up into the bearded face of the old man, he found there, for the first time, a flash of interest.

"You are Mr. Conway?" he asked, his confusion gone.

The bearded one relaxed, and a faint smile played around his mouth. "Need you ask that? You play remarkably well. Who is your teacher?"

The ranger had placed the violin gently on the long table and now stood facing the hermit. "Paulinski, of Boston."

The recluse looked up in surprise. "A pupil of Ivan? Ah, he is a master."

Bewilderment appeared upon the ranger's features. "You know him, Ivan Paulinski?"

The hermit drew up beside the antique chair and dropped into it, still grasping the barrel of his rifle. "Ah, yes; pupil and teacher—I the teacher."

A look of incredulity crept into the stranger's eyes. Paulinski, the master, a pupil of old Dad Conway, the outlawed recluse! It seemed ridiculous! But the Stradivarius! The instrument of the masters!

He began rather slowly: "I have not introduced myself." The hermit's face became again a graven image. "I am McNamee, the new forest ranger at Thoms Pond."

If he had expected any show of emotion he was keenly disappointed. "I am well aware of your identity, Mr. McNamee," said the hermit teacher of Paulinski, "but I did not know you were a pupil of the great Ivan. What brings you here tonight?"

Suddenly the ranger remembered the rather uneasy position he occupied, made doubly so by the untimely looting of the hermit's cabin. Then he recalled his own mission and was abashed at his failure to carry it out instead of fiddling away the precious moments.

The voice of the old man broke his train of thought. "Is it so hard to answer?" he was asking. "Then allow me to answer it for you. Your supervisor ordered you to search my cabin for evidence of an unlawful kill—there was shooting on the upper divide yesterday, you know."

The ranger's face went white. What the old man said was true, only he had not made the search. He had fiddled away his opportunity. There had indeed been shooting on the divide; furthermore there had been a killing. Crimson stains on the snow had revealed to him very plainly that one, possibly two, deer had been brought down out of season.

He gathered himself together. He was on defense now. "What you say is true, only I did not make the search. But, sir, if you are innocent I will accept your word for it."

A light twinkle crept into the old man's eye. "That is interesting. Is it that you are unfamiliar with the things they say about me? They are ridiculous."

"But," the ranger insisted, "there must be a reason for the things they say about you—some of the things."

Old Dad Conway laid his rifle against the hand-carved table. "Yes, that is probably true. There are two reasons—Ivan Paulinski, the master, and Christmas."

Paulinski? Christmas? Was the man mad? What had they to do with the deeds attributed to him. It was almost sacrilegious.

The hermit read his thoughts, and continued in a lowered tone. "People have never understood, nor could they. But you, a pupil of the great Ivan, with the soul of an artist and the touch of a Heifetz, should know."

He paused to gaze searchingly into the fire. "I do not know why you are a ranger, but I am entitled to a con-

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Trees of the Bible

by
ADELAIDE BORAH

II. The Oaks of Palestine

BEGINNING amidst trees, the Biblical narrative of the Old Testament moves for two thousand years through the groves and forests of Palestine. What proportion of the Holy Land was forested during this period we cannot know with any degree of certainty. The fact that Paradise is mentioned only as a place of trees seems to bear out the idea that much of the land then as now was in a semi-desert condition, for extensive cutting of trees in Canaan by the Egyptians for their mining operations had been going on for a century or more. References in the Old Testament are numerous to particular regions as the forests of North Sharon, Bashan, Gil-ead, Hermon,

and Lebanon, and to particular trees, or groves of trees. On the bare tableland of Judea have been found the whitened roots of trees gigantic in size.

When the patriarch Abraham received the divine command to leave idolatrous Babylon in Ur of the Chaldees, the

land of rich fertility and cultivation, of thick forests of palm trees, of tamarisks and of acacia trees and pomegranates and ripe grain, he gathered his Arab tribe together and went. After a brief sojourn at Damascus, he came into the Promised Land and built an altar to the Lord on the plain of Moreh under an oak tree: and here begins the controversy that has raged loudly and



International Newsreel Photo

In the heart of the Promised Land lies Hebron, the oldest city in Palestine. Here Abraham came with his little Arab tribe, pitching his tents by the Oaks of Moreh



Absalom's long locks caught and held him in the boughs of a giant oak tree in the Forest of Ephraim, where the oaks were said to be so thick that they devoured more people than the sword of Absalom the day he made war against his father

vociferously about the question: Was it an oak or was it a terebinth? But, since the Revised Version of the Bible carries the word "oak" instead of "terebinth" in these disputed places, the quarrel has rather quieted down, even though the original Hebrew is *elah*, meaning terebinth, in contradistinction to *elon*, the Hebrew for the oak tree.

To say that Abraham chose a terebinth instead of an oak tree under which to build to his God an altar

seems most unlikely. The terebinth, or turpentine tree, is deciduous, straggling and naked, with a thin shade cast by the feathery leaves. Moreover, no terebinth was known to grow in that place, and, on the plain of Moreh, or Hamath, more oak trees grew than there was terebinths in all Syria or Palestine, and groves of the same stretched for thirty miles over Mount Carmel, and south past Cesarea Palestina, with extensive forests at the north of Tabor, and in Lebanon and Hermon. If, as is stated, no oak trees were known in Babylonia, the great oaks of Palestine, of which there were nine varieties, with their branches of such size and length and their dense foliage, must have seemed to Abraham a manifestation of the Divine Presence.

Under an evergreen oak, of the oaks of Mamre, the Amorite, Abraham, returning from Egypt, built another altar near Hebron on the broad plain of Schechem in the center of the Promised Land (*Genesis 13:18*). The tree, *Quercus coccifera*, another Abraham's Oak, was declared to be standing when Dr. William M. Thomson, missionary to Palestine, made the pilgrimage to that spot, around 1850. Yet, Cunningham Geikie in his "Hours with the Bible" tells us that "a tree three miles north of Hebron is still claimed to be Abraham's Oak, but though it has had its name given it for 300 years, it is in reality quite modern compared with even a late antiquity. A similar one two miles north of Hebron was honored in the Fourth century as Abraham's Oak and it is hard to say where the true site was." An evergreen oak at that place is recorded to have been burned no longer ago than the Seventeenth century, which was asserted to be as old as the world, and Abraham was seen to entertain angels beneath it.

Many interesting events of Biblical history transpired under or near oak trees. The Hebrew race is compared to the terebinth tree and to the oak tree, specifically mentioning the two trees (*Isaiah 6:13*). The teil tree of the



E. M. Newman, Publishers Photo Service

Mizah, in the Mountains of Judea, from whose bare tablelands have been taken roots of ancient trees

1611 Version is here given as the terebinth, which it probably was, although the teil tree is also the name of the linden, or lime.

Rebekah's nurse, Deborah, was buried at Luz, that is, Bethel, in the land of Canaan, and the place was called Allonbacuth, the oak of weeping (*Genesis 35:8*), said by some to have been Abraham's Oak, by others that it was a prickly oak, *Quercus ilex*.

At Bethel, also, was found sitting under an oak, a man of God, a prophet (*1 Kings 13:14*), and, when Jacob arose to go to Bethel there to make an altar to God, he first took the idols of 'his family, "the strange gods which were in their hand, and all their earrings which were in their ears; and Jacob hid them under the oak which was by Shechem" (*Genesis 35:4*). Many years after Abraham had built his altar at Shechem, Joshua took a great stone, and set it up there under the oak, presumably the same tree, that was by the sanctuary of the Lord (*24:26*).

Gideon brought food out under an oak tree to an angel whom he found there, and who commanded Gideon to throw down the altar of Baal that his father had and to cut down the (oak) grove that was by it, or Asherah, originally Astoreth, after the moon goddess of Babylon, an asherah being a tree trunk with the branches lopped off (*Judges 6*).

The Oaks of Bashan (*Q. coccifera*, *Q. aegilops*, and *Q. lusitanica*), before the war, still stretched greenly on the mountain sides from Gilead to Hermon, where they stood and heard the wild cattle bellowing at their feet (*Zechariah 11:2*).

On the edge of the Wilderness of Paran was El-Paran, the oak of Paran, and there went Chedorlaomer, the Elamite, with his host during the battle of the kings of Sodom and Gomorrah and other kings. This was that time, some 2000



Underwood & Underwood

Although there has been much controversy as to the exact location of Abraham's Oak, under which the Angels visited the patriarch, this tree, on the Plains of Shechem, near Hebron, is the one generally accepted by Biblical students and historians

years ago, when Abraham told Lot they must separate and gave him the choice of land he wished to occupy (*Genesis 14*).

Feeding places for the flocks were for the most part in oak forests, those east of Lebanon, ranging from Baalbeck to the region of the cedars. Probably the largest oak forest in Palestine was that which extended northward to the

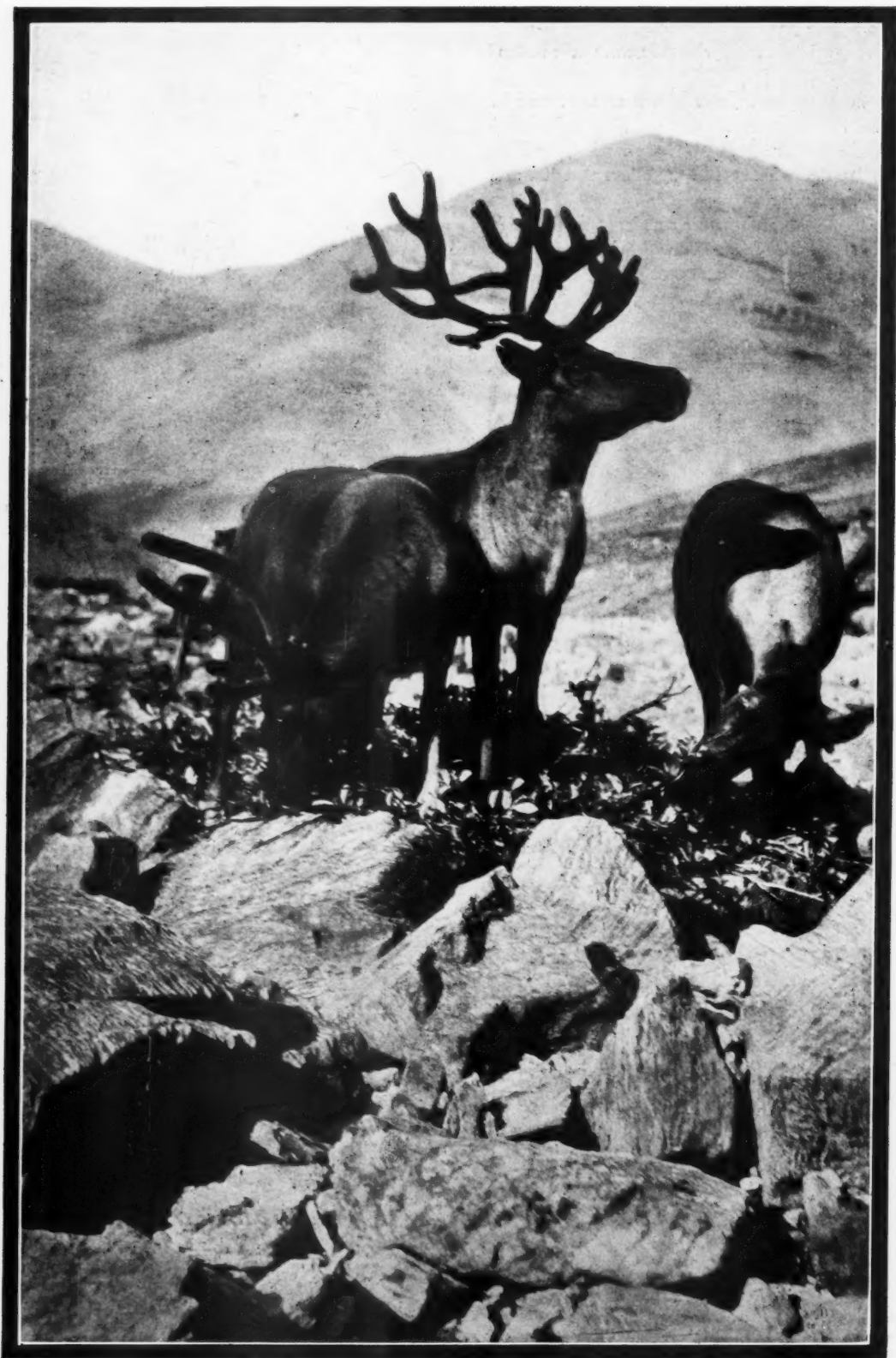
other side of the region of Shaghur, and south to Sharon. In winter the shepherd who tended his flocks was hard put to find sufficient herbage for them, and he was accustomed to cut the branches from trees and even to fell the trees to give his sheep enough green leaves for their subsistence until spring. "Feed thy

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International Newsreel Photo

The rose-covered Plain of Sharon as it appears today. Yet, probably the greatest oak forest in Palestine at one time extended from Sharon to the region of Shaghur



—Lomen Brothers

The picturesque reindeer, around which the traditions of Christmas cluster, and which is contributing greatly to the welfare of the Eskimos in Alaska



Alaska's Reindeer-Caribou

Experiments in Crossbreeding Promise a New and Rugged Animal Yet to Be Named

By W. B. BELL, *United States Biological Survey*

FOR most of us the picturesque reindeer is invested with an amount of romance and tradition which our disposition seldom allows to cling to anything. The majesty of their great antlers, the traditions of Christmas which cluster about them, and the medium of poetry and legend through which come most of our ideas on the subject, have been chief factors in producing this result. We are wont to think of the reindeer not only as a patient beast of service to the fur-clad people of the land of the midnight sun, but as a noble friend to all the world.

By the same process of reckoning have we come to know the caribou, the really native American reindeer. From fiction and recitals we have come to lionize this rugged and fleet American big game animal as a very Ishmaelite in its adventurous and wandering habits. We picture great herds like nomadic and restless spirits, constantly migrating to new haunts; we see unbroken natures rejecting mankind and his civilization; we see an animal equally as nimble as the deer and as powerful and as capable a swimmer as the moose.

Thus, our impressions of both the reindeer and the caribou are taken from such sources that they could scarcely be otherwise than somewhat idealized, but for decidedly dif-

ferent reasons. In the reindeer we see pictured the perfect animal, responding ideally to the moods of mankind, portraying all the glory that tradition and sentiment have heaped upon it. It has brought unbounded joy into the hearts of children, and it is for this reason, undoubtedly,

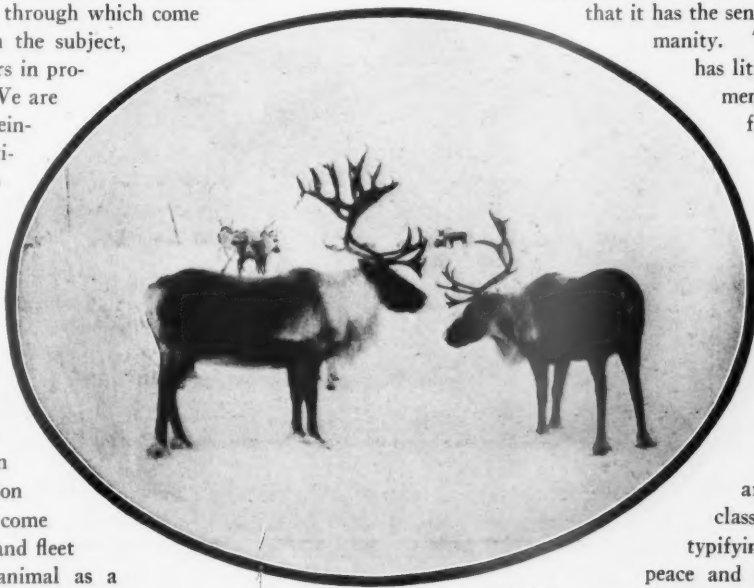
that it has the sentimental devotion of humanity. The caribou, however,

has little or none of this sentimental appeal, but draws from most everyone admiration of its nomadic nature, its indomitable courage and its disdain for domestication. It is a creature of striking nonchalance and swift action, two characteristics human nature the world over respects.

So, accustomed as we are to idealize, we have classified the reindeer as typifying an atmosphere of peace and noble service, and the caribou because of its wild and adventurous disposition, without making practical observations and practical conclusions. We jump at extremes, without a doubt, and it is safe to say that most of us have never considered

seriously the fact that a few peaceful traits of the reindeer might be worn very becomingly by the caribou and that an infusion of the wild characteristics of the caribou would improve the reindeer.

But these idealized impressions of the world, mirrored



—Lomen Brothers

The Alaskan reindeer, imported from Siberia, is being crossed with the larger, untamed caribou in an effort to add strength and ruggedness to the strain

from romance and tradition, do not reflect altogether the true situation. Experts, after watching the reindeer adapt themselves to the food and climatic conditions of the northern Territory, and become adopted by the natives, drew very practical conclusions and began to dream very practical dreams. Romance and tradition did not confuse their vision. The reindeer may have been the subject of prose and poetry for Christmas Eve to every child in the nation, but to the experts they were blood, flesh and bone, and a very important economic and social factor in Alaska, the value of which could well be weighed in terms of life and death. For since the first herd of ten animals was imported from Siberia in 1891 by Shel-

of the dream was for a more rugged and vigorous animal that should be better able to shift for itself during the long, hard winters, and combat to a greater degree the dreaded diseases. The second point was a matter of breeding. The experts had visions of larger, stronger and more active reindeer males, and more attentive and better mothers among the does. The third point of the dream was purely economic. The body of the average reindeer when dressed for the meat market weighs approximately 150 pounds, and the experts were quick to see possibilities of commercial benefits from an animal of greater weight.

The experts' dream was of cross-breeding the reindeer and caribou, thereby obtaining fav-



—Lomen Brothers

Though the reindeer is an expert swimmer, the caribou is larger and more rugged and often migrates across swift rivers and broad lakes. This picture shows reindeer being herded across a small lake, and it is believed that through cross-breeding with the caribou they will be better able to withstand this and other strenuous hardships of the Alaskan range.

Above, is a drawing by O. J. Murie, of the caribou in his native haunts

don Jackson, who was working among the Eskimos for the United States Bureau of Education, to provide a means of livelihood for the natives as well as food and clothing, the Territory has made remarkable strides toward a new prosperity and social betterment.

The experts' dream was three-pointed. The original reindeer herd of ten animals had increased enormously and domestication had not only created a problem of winter feed but had subjected the animals to certain diseases, as is common in the modern live-stock industry. Thus the first point

orable characteristics of ruggedness in the caribou and from the reindeer the disposition to be domesticated. It was reasoned that such a strain would solve many of the problems confronting those endeavoring to establish this new industry for Alaska.

Before we go further into this extraordinary development, however, it would be well to look back and recount the growth of the industry following the first importation of reindeer from Siberia in 1891. In the first place, reindeer grazing is an industry of the Arctic and sub-Arctic regions,

and for many years has been a considerable economic factor in northern Norway, Sweden, Finland, Russia and Siberia. It was with this knowledge that Sheldon Jackson brought the original, or "mother," herd to Teller, on Seward Peninsula, Alaska, more than thirty-six years ago. At that time something of a catastrophe was imminent in the Territory. The Eskimos had for years depended entirely upon their hunting resources for food and clothing, as a matter of fact, for their claim on life, and Mr. Jackson found these resources rapidly diminishing with the natural consequence of starvation and chaos. The climate and vegetation of a large part of Alaska were closely similar to those of regions occupied by

In Alaska there are two general types of reindeer—a long, rangy, big-framed animal and a short, stocky one. The rangy type has finer, longer, more symmetrically branched and harder horns, while the shorter type has stockier, broader horns, wide at the base and often irregularly branched at the tips. In the northern Territory the reindeer have also been

successfully fed grain and hay with other cultivated crops, and lichens are found not to be essential to their maintenance, although the chief sustenance of the herds in winter. Grazing tends toward permanent ranches with natural boundaries, and under a fixed allotment system open herding has been found practicable.

The ownership of the herds is divided between



—Lomen Brothers

Imported from Siberia more than thirty-six years ago, the reindeer has been a patient beast of service to the people of Alaska, in addition to being a source of food and clothing. Crossed with the caribou, experts believe their value will be increased because of greater size and ruggedness. Above, a reindeer fawn. Experiments conducted by the United States Biological Survey show that fawns resulting from cross-breeding weigh about five pounds more than reindeer fawns.

reindeer in the Old World countries, so the importation of the reindeer appeared feasible.

A year following the release on Seward Peninsula of the "mother" herd of ten reindeer, 171 more were brought to Alaska, and these, with others introduced from Siberia during subsequent years up to 1902, brought the total importations to 1,280. Today, while an accurate count has not been made, it is estimated that between 500,000 and 600,000 reindeer are in Alaska. In addition to this, many thousands have been killed for food and clothing.

white Americans, Lapps and Eskimos, the natives claiming more than half of the animals. There is much variation in ownership among the natives, the herds ranging from a few head to thousands. Up to within a few years ago, the industry had been largely a native enterprise and the Eskimos were taught herding and given ownership in reindeer through a system of progressive apprenticeship under instruction of the Lapps, brought to the country for the purpose. Many of the Lapps remained and today own thousands of reindeer. The white Americans, however, were excluded from own-

ership until recently when it has become apparent that they are needed to assure the desired economic development of the country.

In the early stages of the reindeer industry in Alaska the animals were used only to a limited extent as beasts of burden, for packing in summer and drawing sleds in winter. They were also used as a source of meat for food and skins for clothing and sleeping bags.

Along about 1920 the industry had reached such proportions that many difficulties developed under the crude methods of handling and herding employed by the original Lapp herders, and the United States Biological Survey established a reindeer experiment station at Unalakleet, on the shore of the Bering Sea, and began a close study of the parasites and diseases of reindeer and of methods of combating them. A study was also undertaken of grazing conditions, forage plants and herd management. From this first survey there developed a study of the biological background for the industry which brought the experts into contact with the native caribou, an animal closely related to the original progenitors of the reindeer.

The caribou had long been one of the most important natural assets and attractive wild life features of Alaska. The remarkable migrations of the great herds between their summer and winter feeding grounds have been justly celebrated features of the natural history of this great northern region. These animals rank high among the big game resources, vastly superior to the reindeer as introduced from Siberia and bred in Alaska. The males of woodland caribou are larger and stronger than the reindeer males, and the does have been found to be superior mothers. They are accustomed to shift for themselves, to subsist where the domesticated reindeer would probably perish. Too, a caribou dressed for the market would weigh close to 300 pounds, almost double the weight of the average reindeer. In view of these observations and the close relationship between the reindeer and the caribou, the experts began their dream of improving the original reindeer stock by cross-breeding.

There is one thing in the layman's idealized impressions of the caribou that rings true, their untamed disposition and their disdain for mankind and his civilization. Add to this their vigorous nature and power of muscle and we have real respect for the task that confronted the experts in capturing enough of the wary males for their experiment. In the fall of 1924 ten woodland caribou were taken at Kokrines on the upper Yukon River, after months of effort. The following spring they were transported by barge down the Yukon and shipped by power boats to Nunivak Island and liberated among a herd of reindeer.

Few of the men who participated in the capture of the unruly caribou males and their subsequent journey down the Yukon, will ever be in want of a dramatic and adventurous tale to relate. There never was a prisoner with human intelligence and emotions more resentful of capture and confinement than were those ten powerful caribou. Nor did their resentment abate with longer association with

man; they were as far from domestication at the end of the journey as they were when first captured.

After this first trying experience in capturing male caribou, the Biological Survey men turned to more ingenious methods. At Harding Lake they had observed great herds of caribou entering the water, as they are naturally expert and powerful swimmers, often migrating across broad and swift rivers and lakes. The Government workers, with the aid of a motor boat, succeeded in roping some exceptionally fine young specimens.

When released on Nunivak Island, the first caribou bulls, because of their greater size and aggressiveness displaced to a great degree the reindeer bulls, and during the succeeding years the fawns produced exhibited features indicating clearly their origin from cross-breeding between caribou bulls and reindeer does. These features included a marked tendency toward a Roman nose, larger and coarser ears, more pronounced hump at the shoulders, a much larger body, longer feet and tail, and other general features resembling the caribou.

Experiments conducted at Fairbanks, Alaska, at the reindeer experiment station, show that fawns resulting from cross-breeding weigh about five pounds more than reindeer fawns, and that larger physical structure promises a marked improvement in size and conformation of the adult animal.

So it appears as though the experts' dream will be realized, and that in years to come a new form of animal will roam the land of ice and snow. Nor is it a dream far-fetched to see an animal of greater intelligence than either the caribou or reindeer, one having the instincts and favorable characteristics of both. Also we see an animal of rugged constitution, well equipped to take care of itself and with a certain inclination to do so; we see an animal of peaceful tendencies, pliable enough for reasonable domestication, yet with enough strain of the untamed to make it capable of shifting largely for itself.

This does not in any sense mean that we of the world will be deprived of our romance and tradition, our idealized impression. The reindeer will always be the subject of legend and poetry on Christmas Eve, and undoubtedly an important factor in the development of our great northern possession. The nomadic caribou will for years to come roam unmolested in the shadows of the midnight sun, and their protection as a wild life factor is just as important as is the preservation of the reindeer as an economic factor in this northern land.

But in the meantime there will develop in Alaska a great industry. There will be better management of the range and facilities for utilizing the product. This infusion of new blood by cross-breeding has unlimited possibilities for Alaska's prosperity and social development. There will be delicious meat for the table and a permanent supply of skins for various uses. There will be milk for the Eskimo babies, robes and garments to be made up by the native women and profitable employment for the men. And last, but not least, Alaska will retain its picturesque wild life and its colorful tradition.



Courtesy the Vermont Commission of Forestry

Jay Peak, in the Green Mountains of Vermont, the only Eastern State traversed from end to end by a mountain range

ONE of the most devastating floods in the history of the country valleys of Vermont in the fall of 1927. Besides the tragedy of human lives lost and the enormous destruction of property, the deluge wrought great damage to valuable farm lands through the process of erosion and deposition of sand, gravel and stones. But the damage to the land unquestionably would have been vastly greater than was the case, had it not been for the

Hugh Hammond Bennett, of the United States Bureau of Chemistry and Soils, is one of the outstanding authorities on soils and erosion in this country. He has made many scientific and practical studies from below the Equator to the frozen Arctic Circle. — Editor

powerful soil-conserving effect of the forests that cover so much of the uplands of the State.

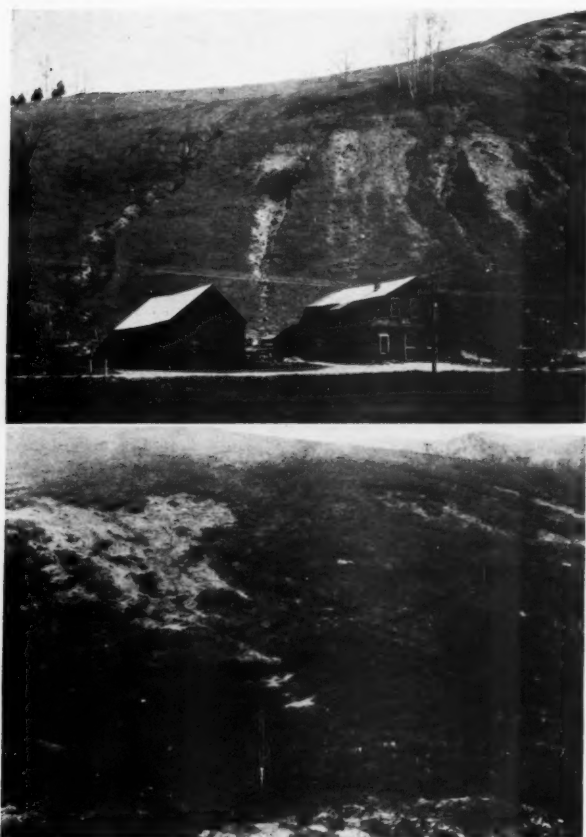
This conclusion is based upon a survey made by the writer and others during the past year, of the damage done

in the valleys of the Winooski, Lamoille, Barton, Passumpsic, Missisquoi, White, Ottauquechee, Williams, Connecticut Rivers and various tributary streams. These investigations showed that numerous fine meadows of the alluvial plains



Photograph by E. Van Alstine

Vermont Hills and valleys near Cavendish, Vermont. But for the highly protective covering of trees and shrubs, which serve to anchor the soil, the story of Vermont's flood damage would have been vastly more tragic



The first stages of flood disaster. Above, overgrazed pasture land with resulting erosion. Unprotected by an absorptive layer of vegetation, these hills offer little resistance to excess rainfall. Below, a mud flow, the usual result when the top layer of soil becomes filled with water. These areas can be brought under control by planting Scotch or white pine

suffered tremendously both by deposition of sand, gravel and boulders, and by erosion of the stream banks and flood plains. Greatest damage resulted from the laying down of deep blankets of coarse sand and gravel, which physically resembled layers of shot, ranging in depth from a few inches to as much as six feet.

Roaring Branch, for example, a small stream in the northern part of the State, rose to such demoniacal fury as to move stones weighing a ton or more for distances up to a quarter of a mile, and depositing them on what the day before was magnificent meadow land. At one place where this little stream debauched from the uplands onto a broad flood plain, the channel was cut fifteen feet below the former bed. This cutting was through a mass of glacial boulders some of which weighed ten or fifteen tons. The huge rocks were jammed about like pebbles. Numerous farms were examined where from a fourth to all of the arable land was ruined by overwash of loose sand and gravel, and much or most of that not covered in this way received shallow de-

posits sufficient to kill meadow grasses. When warm weather came, following the flood, the valleys instead of bursting into their usual spring glories of bright green carpets of grass, had the dismal appearance of having received a down-pour of volcanic ash.

Altogether probably 10,000 acres of good meadow land were temporarily or permanently ruined by the flood, and from five to ten thousand additional acres were damaged to some extent. To those accustomed to thinking in terms of land areas, over the less hilly and mountainous parts of the nation, fifteen or twenty thousand acres does not seem much. In Vermont, however, such an area is of vast importance, since it represents the very best type of soil in a commonwealth whose extent of arable land is none too large. To the individual farmer the loss of even a half-dozen acres of river meadow borders on a catastrophe.

In addition to the damaged stream bottoms, a considerable area of upland suffered from slides and erosion, chiefly on overgrazed slopes of the valleys. Bare patches of sand and gravel dot the landscape in many places. Scarred areas of this kind increased greatly in number and size during and



With water-holding vegetation gone, excess water turns streams into raging torrents, which overflow their banks and leave devastation as pictured here. Above, a huge gap cut out by overflow. Below, meadow land covered with erosional debris of sand and gravel

following the flood. Usually little or no effort is made to check this kind of wastage and the scars too often are permitted to spread until pastures and fields become seriously injured or ruined. These ugly wasting upland areas can readily be brought under control by restricting grazing and setting to Scotch or white pine. On the Caledonia State Forest, near Lyndonville, blowing sand that had reached the stage of advancing dunes was brought under as complete control with Scotch pine as if a roof had been nailed over the bared area. Here the exposed loose soil was so unstable that at first the planted seedlings were unable to gain a substantial footing because of the drifting of the sand. The seedlings were literally blown out of the ground. Wind-breaks of shrubbery and board fences failed to ameliorate the situation. Then beach grass was brought up from Cape Cod and set in the loose yellow sand which was to its liking. The bunches grew apace, and under their protection, newly planted pine seedlings took hold and grew into forests that have given absolute protection to the land. This has resulted in saving adjoining areas of grass and crop land from the smothering effect of advancing dunes.

The shallower and finer of the flood deposits can be



With the dismal appearance of having received a down-pour of volcanic ash, these meadow lands permanently ruined for crop use and grazing by an overwash of sand and gravel, may be partially reclaimed by planting trees. Both top and roots help prevent the sand from drifting and establish in time a protecting cover



Above, Scotch pine planted in deep sand deposited by the flood of 1927 near Middlesex, Vermont, to prevent the sand from drifting. Below, Vermont hills once exposed from overgrazing, and planted to Scotch pine, are now thoroughly anchored against wind and water

brought quickly into productive conditions by planting to humus-supplying crops in order to make the soil firm. Thus the agronomic aspect of the flood devastated areas is not hopeless for the greater part of the alluvial soils. The situation in the case of the deep blankets of coarse sand, gravel, and stones, however, is more distressing. Time will ameliorate this condition to some degree. Nevertheless, much good land has thus been ruined for crop use, perhaps permanently. These areas can be put to use growing trees.

That vastly more farm land was not ruined was quite obviously due to the large extent of forested areas in the highlands, together with the prevailing general use of cleared uplands for pasture. But for the highly protective covering of trees, shrubs and ferns, the story of land damage would have been a vastly different one. Actually, the amount of erosion resulting from the flood was remarkably small, and restricted largely to the alluvial plains and the sloping faces of the valley bench-lands. A very large proportion of the sands and silts that smothered the meadows consists of material removed from the old flood plains by bank erosion and by scouring and channeling of the flood

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The Little Preacher

By W. C. McCORMICK



HE was a frail little fellow, this boy the other children called "The Preacher," a typical child of the great pine woods of the south. Like many others, he was viewing for the first time in his ten years of existence a moving picture.

One of The American Forestry Association's Southern Forestry Educational trucks stood beside the little weather-beaten school house, nestling under tall pines and spreading live-oaks. The motion picture operator was using his day-

him standing apart from the others, engrossed in one of the pamphlets he had secured. When he learned through the others that I had taken his picture a flush mounted to his cheeks, and when I asked his name his reply was drowned by the cries of "call him Preacher! He's just Preacher!" The children danced around him, laughing and shouting, "gotcher pitcher took, didn'tyer, Preacher?"

After the show and short lecture had been given and literature distributed, the truck moved on,

light screen for an open air picture, as the school house was too small for a regular indoor show. Standing in the background, studying the expressions on the faces of the sixty-five children watching the picture flash through the screen attached to the rear opening of the truck, I was attracted by this boy. He stood motionless in the front row, hands folded on his breast, eyes centered on the picture unfolding before him. It was evident that every thought conveyed by the film, "Trees of Righteousness," registered on his child's mind.

After the picture had been shown the operator began distributing forestry literature and rulers, and I noticed that this little fellow was the first to reach for a pamphlet. As one of the large posters was being tacked on the side of the

school house he stood in front of the others, deeply absorbed in reading the lesson it brought out. Later I photographed

THOSE who have followed the progress of The American Forestry Association's Southern Forestry Educational Project in Florida, Georgia and Mississippi have undoubtedly wondered just what reaction the motion pictures, lectures and literature have had on the children of the rural schools after the educational trucks have passed on. And indeed it is a question with which everyone should be deeply concerned, for it is the only way in which results of the campaign can be measured at the present time.

To answer this question the best informed man on the subject, W. C. McCormick, Regional Director of the Project in the three States, was asked to prepare an article for the readers of AMERICAN FORESTS AND FOREST LIFE, and he has responded with "The Little Preacher," a true incident, interestingly and humanly told.

While the little Preacher and his companions are but a few among more than fifty thousand children who had received the fire prevention and forestry lessons the educational trucks had carried to them up to December 1, and the little weather-beaten schoolhouse nestling under the tall pines was but one of nearly four hundred visited, they are typical of the great pine woods of the South. It is therefore safe to say that a great many "Little Preachers" have been left as missionaries in the field after the trucks and lecturers have passed on. For each school has received either an outdoor or indoor motion picture program or both, augmented by lectures and pamphlets of a simple and practical nature.—Editor.

cart. Apparently there was a council of some sort on, and I quickly recognized the voice of my little friend.

following its itinerary. Work elsewhere caused me to leave the men and truck at this point. The following day, however, upon returning to this county, I had occasion to pass this same school. It was the noon hour. Small groups of children were gathered together under the trees, along the roadside, or in the school house door, while others sat in the sun along the side of the building, eating their lunches and playing. Almost immediately I began searching for my friend, "The Preacher." After visiting several groups without success, I walked to the rear of the building where I discovered an old two-wheeled cart under a large oak, and protruding above the side of the cart bed I saw several small heads.

Unnoticed, I walked to within a few feet of the

"But they can be stopped." The high-pitched voice of "The Preacher" was very positive. "An' my Pa promised me las' night that he's goin' to save his woods, 'cause trees is a crop."

"Yeah," another voice broke in, "my Pa said he was shore glad them forestry fellers are showin' them pitchers 'cause maybe people won't burn so much now an' we can keep fire outen our woods."

"You know," went on the first voice again, "trees are a lot more'n jist shade an' wood—"

"Yeah, and listen, Preacher," cut in another, "didyer know that they make silk from trees?"

"Sure they do," resumed the first voice, "an where'd we be fer school books without trees? You know las' night I set fer two solid hours—well, till Ma made me go to bed—an' tried to think what was not made from trees, an' I couldn't think of a single thing that didn't run back to the woods somehow or other. When that forestry feller said that most ever'thin' was made from trees, he shore didn't miss it."

"That was shore funny where them two ol' fellers fought in the pitcher, wasn't it?" questioned another.

"Yeah, you know that one young-like feller didn't want his woods burnt an' that was why he fought that ol' man. An' if I ketch a feller greenin' up the woods 'round our place I am goin' to set my Pa on him, an' you'll see a worse

fight than that one in the pitcher, 'cause my Pa's bound he's goin' to keep fire outen his woods from now on."

"They ain't no good settin' out fire nohow," spoke up another.

"Shore they ain't," replied the little Preacher. "They ain't no more good in it than burnin' up some other crop, is there? Howdja like to see your corn crop burnt every year? You know, jist sort of swunged so's that every stalk would be little an' scrubby? Howdja like that? Huh? How much corn do you s'pose you'd git? Well, trees is a crop, an' didn't that forestry feller prove to us by them pitchers an' that other thing—whatcha call it?"

"Chart," prompted another.

"Yeah, chart; that's it. Didn't he show us by that chart that ever' fire in the woods sets the trees back jist a little, an' that fire after fire turns pine trees into a scrub timber crop?"

"Now, look't that ol' cow over yonder; ain't she scrawny? Now, that's 'cause she ain't got nothin' to eat 'ceptin wire grass, 'cause fire kills out good cow feed. Didn'tja hear that forestry feller say so yesterday? When I was goin'

home last night I looked 'round through the woods to see if I could see any of that good cow feed that they showed in the pitcher an' that they said fire killed out, an' you know I couldn't find nothin' but plain old wire grass an' reeds. If you will read them—what you call 'em?"



The Little Preacher



The Little Preacher, standing in the foreground, was one of the first to reach for a pamphlet after the picture had been shown



Children of a little school in rural Florida receiving a forestry lesson in motion pictures. The daylight screen is used here

"Pamphlets?"

"Yeah, pamphlets, that you got yesterday they will tell you how burnin' kills off good cow feed."

"Yeah, and how 'bout game an' fish an' other things that it kills off an' hurts?" questioned another. "Where are we goin' to get wild turkey, an' partridges, an' 'possum, an' coon, when the woods are all gone?"

A bell rang out in front of the school house. The voice of the little Preacher ceased. The row of heads protruding above the side of the cart moved in preparation to crawling down.

"Durn that bell, anyhow," came from one of the group, "jist when we was busy studyin' trees."

"We'll hol' 'nother meetin' tomorrow noon," came the voice of the little Preacher,



Preparing for the motion picture program. The projector is attached by a heavily insulated cable to a generator inside the truck



Typical school and school children of the great pine woods region of the South where woods burning has been practiced for many years



Seated at their desks these school children are being shown by visual methods the great destructive power of fire in the woods

"'cause you all know what it said on the sides of that truck, doncher?—growin' children need growin' trees."

I was around the corner of the little weather-beaten schoolhouse nestling under the tall pines and spreading live oaks, and out of sight when these young southerners climbed hurriedly over the side of the old two-wheeled cart and scurried back to the

class-room. Somehow or other I had no desire to be caught eavesdropping. But as I drove away I could not help but wonder just how many "Little Preachers" we are leaving as forest missionaries in the rural districts of Florida, Georgia and Mississippi after the men and the educational motion picture trucks have passed on.



We turn to nature for revitalization—to our age-old playground, the lake, the river or the forest-clad mountain

Our Need of the Outdoors

By F. J. CLIFFORD

turns to his green-stone to reestablish his eye to color values, so do we turn to nature, to the great outdoors, to revitalize our wearied minds and bodies.

Springtime appeals to many, as does summer. But when the leaves take on their autumnal coloring, when frosty air tingles one to renewed vigor, there is an indefinable something that no other time of the year suggests. In it we see the antlered deer beginning its restless wanderings, we see the bear, loaded with warming fat, hustling about for winter quarters, the muskrat building warm houses, the squirrel storing away the seed of pine cones—all of nature's children so busy and happy in their eager preparations for winter. And then, when the first snow comes, there is added joy.

One wintry day I was in the mountains just after the first snow had fallen. With uncovered head I stepped into the white drifts, thankful that I had been granted the health and strength to enjoy them. The snow was like great white pages on which nature had written a story—a story of deer tracks crossing and recrossing in eager quest; of erratic footprints of the lynx and bobcat in search of prey to satisfy their eternal hunger; broad signs of snow-shoe rabbits scuttling across the lighter drifts in hurried flight—a tragedy written in bloody scroll in the snow where bits of fur told of the uncanny ability of the great horned owl to swoop down and claim its hapless victim. Farther along I

stopped before the broad footprints of a mountain lion. The tracks were but a few minutes old. Further search disclosed fresher tracks about ten feet away where his first bound had carried him after he had winded me. He was followed by three coyotes, in the same manner in which coyotes at one time followed the buffalo-wolf of the plains. It is the sign of a killer. On up the mountain the snow was deeper; but what did that matter? Thick wool socks retained the warmth of my feet and, bulging over the edges of high boots, kept out the snow. Tightly

woven clothing and gloves insured my comfort against the cold and snow. In the distance a great peak pushed



SOME people never see the outdoors. They are much like the man who complained of not seeing the forest because the trees obstructed his view. Perhaps this is why so many people grumble and complain when

old King Winter paints the window panes and quiets the murmuring brooks with magic sheets of ice. To many, winter means cold toes, fuel bills and much shivering around a fire. To others it suggests rosy cheeks, the swish of snow-shoes, skis, skates, or a joyous evening behind the merry sleigh-bells. And why shouldn't it? The great outdoors has been a vital part of humanity. In it we have lived, loved and hunted the wild things for food and raiment; we have sought out the sustenance that bountiful nature hides away in plant and tree life. Lakes, rivers, forests, and mountains have been our playgrounds for centuries.

They are so much a part of us that we can no more forget them than we can live without them. As the artist



No hibernation here! A swift canter in the frosty air after a light snow brings renewed vigor and love of life

the cold and snow. In the distance a great peak pushed

up its crest in crystal grandeur. I bent my steps toward it. At timber-line I stopped and sought shelter on the south side of a dwarfed spruce, its gnarled, twisted limbs warding off the cold that drove out of the north, as noiseless as a drifting shadow. How silent it was! Not a whisper stirred the air; nothing ruffled the drifts about me.

Go there—to the silent places of the outdoors—if you are out of touch with the Infinite plan. Go anywhere, just so you are away from the man-made atmosphere. The silent places teach and preach in soundless words made doubly effective by their muteness. They cleanse and freshen the heart and spirit, and one is better for the experience.

A good roof, a cozy house and a warm fire are real pleasures for some on a stormy day in winter, but there is keen delight in donning boots and warm clothing and mushing around to see how the wild-folk are making it, or, perhaps, just for the enjoyment of the hike.

I have taught my children to make the most of what they have, what life may bring them. And today, nearly grown, they eagerly await the coming of the first snow and ice, which invariably sends them madly searching for skates and snowshoes. I do not know how many pair they have had. It seems as though I have sharpened dozens for them.

How different when I was a boy. My brother and I had one pair of skates between us. They were wooden with a narrow steel runner. A screw fastened them to the heel of our brass-tipped boots, and the forward part was held to our foot with a strap. It is physically impossible to forget the first time I put them on. I scooted down the shore ice where it had fallen a bit and, in trying to stop, spun dizzily around. The swamp land ahead of me and the maple tree on the knoll began to tip into the air. Then my head hit the ice. Growing older, I became better acquainted with my skates, and, incidentally, the outdoors. It sud-

denly held so much for me that I could not resist it, even had I wanted to. It gave me much of life.

Later on, while working in a lumber camp in Michigan, I set out on an errand in the face of a wet snow driven out of the north. The country was strange to me and the sky overcast. The forest ahead was dark and gloomy, and my mind in much the same condition. I had noticed that the snow was clinging to everything, but I was not prepared for

the surprise that awaited me on the return journey. It was so very different then. The trees were like pearls from root to branch; not a breath of air stirred in the laden branches. I marveled at this sudden transformation, and laughed when I remembered how fearful I had been of getting lost. Nature had

marked directions plainly enough. From this incident I caught a bit of very beneficial philosophy. Look in one direction and the way may seem dark, gloomy and discouraging. Turn about and look the opposite way and it is bright and inspiring.

Get back to nature if you have a doleful tale to tell or feel like hibernating. Any outdoors will do, even if it is no more than a back woodlot or a bit of swamp land. You will be surprised and delighted with the things you will see and learn in so humble a place.

John Burroughs, the great naturalist, was wont to devote hours watching the antics of a spider or chipmunk, and was greatly amused and enriched thereby.

Just east of Dearborn, in Michigan, there is a bit of woodland, not the made-over kind, but just a natural forest. Four or five deer browse in the undergrowth; a sort of waterway winds along the south and west sides. Here is where Henry Ford enjoys his small but natural portion of the great outdoors, and who knows but what this bit of nature, quiet, restful and secluded, has played a big part in the mighty success he has made of life. How necessary are the many parks and forest reserves set aside for us. And as civilization increases and becomes more complex and competitive, so will the value of these playgrounds increase. To them both the rich and poor can go, for the mighty forests are always ready to renew, with the touch of our primordial birthright, that which makes us the vital, pulsing nation we are today.



The swish of the skis makes music in the winter woods as we climb back up the hill for another thrilling flight



Building a "snow man" never loses its fascination, and the work brings singing blood to rosy cheeks

The Girdled Pine Still Lives

By ROBERT MARSHALL

AMONG this country's arboreal anomalies the Bitterroot Valley, in western Montana, boasts one of unusual interest. It is a western yellow pine, completely girdled in 1893, which still survives after thirty-five years. This freak is located on the east side of the valley, about three miles south of Florence.

The bark of this tree was entirely removed for a width of eighteen inches. It was probably peeled by the Selish Indians, who were in the habit of eating the inner bark of the western yellow pine to counteract the effects of their meat diet. Except for a few ax marks, the wood was not disturbed.

Seven feet to the north of the girdled tree, which now measures seventeen inches in diameter at breast height, is another yellow pine, twenty-four inches in diameter. The latter is about eighty feet high and oppresses the smaller pine, which rises only fifty feet. Both trees are approximately eighty years old. There are no other trees closer than 100 feet.

In form the girdled pine is materially larger above the notch than below. At one foot above the ground it is seventeen inches in diameter; at two feet, fourteen inches in diameter; at three feet, where it is girdled, eleven inches in diameter; at four feet it is fifteen inches in diameter; at six feet the diameter is eighteen inches, and at seven feet, where branches begin to swell the diameter, it is seventeen and one-half inches.

The appearance of the girdled tree is very unhealthy. About fifty per cent of the top of the crown is dead, although

the lower part seems to be normal. Prior to a severe freeze in December, 1924, which resulted in serious defoliation among the western yellow pines throughout the northern Rocky Mountain region, the tree is reported to have appeared perfectly healthy. One interesting characteristic of this barked

pine is the great length of its needles. These range from eight to nine inches, in contrast to five to seven inches for the ungirdled specimen. The maximum needle length for western yellow pine, as given by Sudworth, is eleven and one-quarter inches.

Borings made at four places show that the girdled tree continued to grow both above and below the groove. Of course, its rate of increment was greatly retarded. Above the notch its growth during the thirty-five-year period following the removal of the bark decreased sixty-one per cent, as compared with the increment for an equal period before the removal. Below the notch this decrease was ninety-two per cent. In both places the tree grew more rapidly on the side toward the adjacent pine than on the radius away from it. In contrast to this marked decrease in diameter growth in the girdled tree, the ungirdled one decreased only seventeen per cent.



K. D. Swan, courtesy United States Forest Service
The great old yellow pine in the Bitterroot Valley, which has suffered complete girdling and still survives after thirty-five years

The actual diameter increment of the girdled tree above the girdle, where the diameter is seventeen and one-half inches, thirty-five years before girdling was slightly over nine and one-half inches. The diameter growth thirty-five years after girdling was three and eight-tenths inches. At the girdle,

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EDITORIAL

Arkansas' Forgotten Forests

FORESTRY in Arkansas, one is to conclude from F. W. Reed's article on page 7 of this issue, is about as popular as the theory of evolution. Ranking second among the forest states of the Union in point of forest acreage, Arkansas is the only state rich in timberlands which is still without a forest policy and a forestry department. So far as the rank and file of its people are concerned, Arkansas' vast timber wealth seems to be a forgotten resource.

That such a situation can exist in a state otherwise progressive and in which forest industries play so great a part in its economic welfare is difficult to understand. Within the state there are over twenty-one million acres of forest lands, one-half of which are classed as the best pine growing lands in the United States. This acreage alone, it is estimated, if protected from fire and placed under improved management, would grow two and a quarter billion feet of sawtimber and two and a half million cords of pulpwood every year for all time. Here is a potential annual crop with a valuation of between fifteen and twenty million dollars annually to be derived from less than half the forest acreage within the state. The encouraging of this crop, however, does not appeal to Arkansas as a state activity.

As pointed out by Mr. Reed, the forest industries of the state today support a payroll of over fifty million dollars. In addition, they feed the railroads of the state to the extent of almost two million dollars annually in the form of freight on forest products. The buying power of Arkansas' forest industries runs to almost thirty million dollars. This is in the form of fuel, electricity, supplies and equipment needed in yearly operations. More than fifty thousand people of the state receive their livelihood from these industries.

In the face of these facts, one is forced to ask what is the matter with Arkansas' progressive people? What is the matter with her statesmen interested in the economic development and welfare of the state as a whole? What is the matter with her business men and her railroad executives that they are willing to permit a source of perpetual wealth to be forgotten and cast adrift? Great as is the

present contribution of Arkansas' forest resources to the wealth and prosperity of the state, it could be vastly increased by a constructive policy of forest protection and restoration. It has been estimated that the lands of Arkansas chiefly valuable for timber growing will, if protected from fire and conservatively managed, produce annually from two to three times the volume of wood now being harvested.

A number of large timber owners of the state are attempting to protect their lands from forest fire and make them perpetually productive, but they receive no encouragement or assistance from the state government. Hill-billyism, we are told, would divest the state of its forests in order to make room for more farmers. It seems impossible that the progressive people of the state can long accept this absurd dictum, especially when hundreds of thousands of acres already cut over are going begging because they are unsuited for agriculture. It may well be questioned if so-called hill-billyism is responsible for Arkansas' forest inaction. The logical explanation would be that the progressive leaders of the state are not awake to the importance of their forest wealth and the opportunity of making it one of their most productive and lasting natural sources of wealth.

Another effort is to be made this winter to have the state recognize the importance of forestry and to take its position among other states in promoting the protection and development of its forest lands. This effort will succeed only as the progressive people of the state become aroused to their forest needs and opportunities. Arkansas may well emulate the example of Minnesota and demand that its legislature appoint a forestry commission to investigate forest conditions within the state and to study the policies and organizations established by other states for the constructive handling of forestry interests. Unless the people of Arkansas are vastly different from those of other forest states, the findings of this commission inevitably would lead to a strong and publicly supported forestry department, and a state system of forest fire protection that would be an incentive to the land owner to keep his lands growing trees.

New York's Planting Stride?

GR^{EAT} as is New York's record of planting forest trees, the State apparently is yet to strike its planting stride. Conservation Commissioner MacDonald recently announced that the State is investigating the feasibility of a twenty-five year project, looking to the planting of four million acres of idle land in the State that is better suited to growing forests than to any other purpose. A project of this magnitude will eclipse anything thus far undertaken in this country in the field of forest planting. It will indeed set a mark in reforestation that few, if any, other States will be able to equal for a good many years.

The average layman is unable to visualize the really enormous task of restoring artificially the forest on four million acres, even during a period of twenty-five years. In the first place, the project will call for a total of four billion trees, assuming that each acre will be planted with one thousand young trees. This staggering outlay of nursery stock will not be required at once but to complete the program within twenty-five years an average of one hundred sixty-

five thousand acres will have to be planted each year. At this rate of planting, the project will call for a flow of planting stock from state nurseries amounting to between one hundred and fifty to two hundred million trees annually.

Only a state like New York which has aroused public interest and built up large forest nurseries could undertake out of hand a project of the dimensions mentioned by Commissioner MacDonald. New York today leads all states in forest planting. It is interesting to note what a large part of the planting stock supplied by the State nurseries is being used by municipalities which have become interested in the development of municipal forests. There are today two hundred seventy-one cities in the State which are developing municipal forests.

Certainly the Commissioner is justified in declaring that the need of planted forests and their use for the reclamation of idle, non-agricultural land is well understood by the people of the State.

What is a Wilderness?

F^{EW} outdoor projects have captured the public imagination as has that looking to the preservation of some of our remaining American wilderness. The American Forestry Association has been in full sympathy with this movement. In fact, it has taken a leading part in promoting a wilderness policy and is gratified to see a half dozen or more wilderness areas set apart within our National Parks and Forests during the last three years. It views with concern, however, a tendency to confuse this movement in the public mind.

A few weeks ago there was issued by the Commissioners of the Palisades Interstate Park a news release commenting on the wilderness area recently set apart by the National Park Service in Mount Rainier National Park, Washington. The release, however, devoted most of its space to calling attention to the so-called wilderness areas already established in the State of New York in the form of state parks. It is, of course, possible for a state park to be a wilderness area in the strict meaning of that word, but it may well be questioned if there are today any state parks which constitute a wilderness as contemplated by the founders of the wilderness movement. To mislead the public conception of a wilderness area may be as diverting to the movement as public misconception of what constitutes the standards of our national park system.

Opposition has been expressed to the wilderness idea on the ground that it will remove great areas from economic development. At most, the wilderness advocates would not expect more, probably, than ten or twelve million acres to be preserved in natural wilderness conditions, and the claim that this acreage of a few million from a forest domain of over 500,000,000 acres cannot be spared from economic development, hardly warrants serious consideration. But if

the wilderness movement is to become confused in the public mind with the state park movement, and the impression given that it contemplates withdrawing numberless forest regions from economic use, then the economic argument becomes a serious weapon in the hands of its opponents.

Friends of the wilderness idea who do not clearly understand its scope and objectives may profitably read the discussion devoted to wilderness recreation in the recent report "Recreation Resources of Federal Lands," published by the National Conference on Outdoor Recreation.

"The term wilderness," says the report, "means a region more or less forested and of considerable extent where primitive nature is modified to the least possible degree by human influence. It is a roadless area where primitive modes of travel and outdoor life may be enjoyed. Camping and exploration by pack train or canoe are the most familiar examples. Such regions are now very few and are practically confined to the national forests and national parks of the West and one of the national forests of the Lake states."

The report goes on to say that a wilderness area must be of a size that one can roam around in it and through it with a minimum of back-tracking for at least the duration of a ten-day or two weeks' vacation. Area limits will depend upon the character of the country, but as a rule areas dedicated to perpetuating the American wilderness for recreation of the rugged pioneer type will range from 100,000 to 500,000 acres.

Unless a state park is in fact a wilderness area in the meaning of the term and all it implies, the public ought not to be led to believe otherwise.

Misconception of what constitutes a wilderness area breeds misconception of the whole splendid movement.

Artists of The Outdoors

Will Simmons \ \ Animal Etcher

By Lilian M. Cromelin



This is the first of a Series of Sketches of Some of America's Most Outstanding Artists Whose Work Expresses Their Love and Understanding of the Forest and Creatures of the Wild.



THE lure to explore the primitive path leading from civilization back to the truly natural life is one of the strongest known to man, and his response to this urge has found expression in Will Simmons' remarkable portrayals of animal life.

Without himself invading the jungle and following to the lair, his deep and lifelong study of creatures of the wild has given to the world a permanent record of their intimate life. His studies, entirely aside from their mechanical construction and the perfection of their varying finish, show us the minds of his animals. One can literally see the thought that actuates the pose, expressed in the purely instinctive attitude of the subject and caught by the flashing, comprehensive genius of the artist. Will Simmons pictures for us the emotions of animals more vividly than he pictures the animals themselves and, in this, he is achieving to the heights; for modern jungle photography gives us exactitude in reproduction of line and habitat, of motion and sometimes



Two Tails That Twine As One

Drypoint—by Will Simmons

today even of sound, but the camera is rarely quick enough to catch the inner expression that depicts the moods of animals so sensitively as they are portrayed by the delicate but powerful work of such an artist as Simmons. His artistic bent was a rich in-

heritance from his father, Edward Simmons, the veteran American artist, so noted for his murals. Many of our greatest public buildings are adorned with his work, notable examples being some of the murals in the Congressional Library and in the State House at Boston. The roving spirit of this pioneer artist-colonizer carried him over the seas to a far-away spot in Spain, opposite the Barbary Coast, and later to France. And it was in Elche, Spain, on June 4, 1884, during the travels of his parents, that young



Polar Cubs Splashing

An Etching—by Will Simmons

Will was born. As the boy grew his love for animals and ability to understand and picture them was marked. From the *Jungle Book*—his ABC of animal art—he followed his favorite study of biology, and at the zoos and natural history museums his motionless hours of deep study developed his great power of vivid and sympathetic expression.

Educated at Harvard, young Simmons later studied in Paris under Lefebvre, and in Brittany under Alexander Harrison. Valuable scientific studies of the lizards

grew out of his contact with the late M. C. Dickerson and his work in fishes for the New York Aquarium and the Museum of Natural History has added to that training. While he works in all mediums, he specializes in etching, drypoint and water color. Quite apart from the fascination of wild things as models, the mediums called "etching" today are in themselves absorbing. They have the difficulties of technical process added to the art of drawing—an uncertainty of the result which holds one breathless until the damp print is finally lifted from the plate. Some, those in which we admire a rich shading to the lines—as in "Crossed Trails" or "Two Tails"—are drypoints, made by simply cutting the forms into the polished copper with a steel point or diamond. This raises a burr of metal, as a plow raises a ridge of earth, which retains a surplus of ink, like a shadow, along the lines in printing.

Acid etching is made by tracing the lines through a coating of darkened wax, leaving golden lines of metal exposed, which are then eaten out by acid—but one can never be

sure what that acid is doing to the copper, and the whole is, of course, in reverse. But the hardest to foresee is aquatint—which is painting, with a brush. Rosin dust is shaken onto the copper, heated, and cooling crystallizes, covering the plate with myriad dots and a fine mesh of exposed metal between. The subject is then painted onto this surface with black varnish—only those first strokes

before acid is applied will be pure white in the print, as in a photo-negative. The shades are made by alternate acid and varnish—until the whole plate is one black mass. It is strange when all is done and one cleans the plate, to watch the golden bead-work of the forms emerge.

All these are printed by rub-

bing sticky black ink into the design, wiping the rest of the surface more or less clean and running the plate through a roller press, with damp paper, which is forced into the hollowed design, and is lifted from the plate with ink adhering just exactly where the artist had hoped—perhaps.



Among the Lilies

Aquatint—by Will Simmons

An artist of fine quality, Simmons' love for animals speaks for itself in his work. "Two Tails That Twine As One" tells its own story of clinging affection and concerned protection in a delightful, whimsical way, while in "Crossed Trails" we have the other extreme of animal emotion in the powerful drawing of the ferocious anger of the puma as the beast discovers the tracks of his enemy. Captivating are his polar bear cubs in their joyous abandon of play, and the effect of the splashing water is perfect—technically a masterly etching. Again, in contrast, is seen exquisite grace and delicacy of feeling in the aquatint, "Among the Lilies." In "Mallards Rising" is fine interpretation—one feels all the color of the scene and senses the whirl of wings as the leader rises



Crossed Trails

Drypoint of a Puma—by Will Simmons

against the lowering autumn sky.

Someone has likened the sense of art to the chrysalis—has said that in the world inspiration and faith are stifled, lost in calculation. But to him who "in the love of nature dwells"—whose soul drives him to some expression of her varying moods—gradually the senses regain their consciousness. And in the process "each day the light vibrates among the leaves with new, with multiplied colors, and each night the ear becomes attuned to the limitless

silence . . . until presently it almost detects the breathing of the trees. And the mind expands under the spell of the night, and like a new-born moth, which white and trembling delicately crawls from its chrysalis, slowly expanding its drying wings, so intuition slowly issues from its hard shell of habit, regains the faith of out-door sanity, and attunes itself to the universal harmony of Nature, where there is no place for discord."

And that is why Will Simmons has attained. He knows by his intuitive faith and understanding what he is telling us in art. He has come to that high place.



Mallards Rising

Aquatint—by Will Simmons

Arkansas' Forest Paradox

(Continued from page 9)

lolly and shortleaf pine forests if protected from fires, and carefully logged under selective methods, will continually reproduce themselves and grow repeated crops of pine timber at the average rate of 250 feet board measure plus one quarter of a cord of pulpwood, an acre, a year—a total of 2,250,000,000 feet of saw timber, and 2,250,000 cords of pulpwood. The present production is something less than one billion feet of saw timber and at least one million cords of pulpwood.

There is an equal area of thrifty hardwood forests, in the overflow river bottoms and other rich lowlands, where agriculture will not be practicable. If they are given the same degree of reasonable care the hardwood industries can be expanded from their present production of 500 million feet annually to something over a billion feet, and be maintained at this scale forever. In short, Arkansas' forest land, with proper protection and management, will yield fifteen to twenty million dollars in forest wealth every year in perpetuity.

A few of the larger and more forward-looking pine operators have undertaken to put their forests under a sustained yield plan of management. They have installed systems of fire protection and adopted careful methods of selective cutting to the end that their sawmills and paper plants may always have a steady and continuous supply of raw material and may continue for all time to contribute to the wealth and prosperity of the community. With no

state forest fire protective organization, however, and not even a gesture on the part of the state to stamp out forest fires, the efforts of these owners may or may not be successful.

Arkansas' first need is for a state forest department which can head up a state-wide forest fire prevention service, through cooperation on the one hand with the Federal government under the provisions of the Clarke-McNary law, and on the other with the owners of the 20,500,000 acres of private forest land. The proposition has the support of a number of the leading lumber and paper companies and influential citizens who are patriotically interested in the general welfare of the state and who clearly see the importance of perpetuating her forests and her forest industries in order to perpetuate her general prosperity.

A beginning has been made. Early in October, at Camden, during the meeting of the South Arkansas Chamber of Commerce, a small group organized the "Arkansas Forest Protection Association." Membership in the organization is open to all forest owners, both large and small, and to every citizen of the state interested in the perpetuation of her forest resources and industries. The primary purpose of the Association is public education in forestry. It is hoped that this effort will bring into play all of the pro-forestry forces of the

state to the end that legislation may be obtained at this winter's session of the state legislature, creating a State Forest Department and placing Arkansas at last on the road to forest progress.

BURNING THE WOODS PURPOSELY

FOREST FIRES, which the forestry authorities are doing their best to stop, are actually started on purpose in some Southern States, where the notion prevails that such destruction is beneficial. Says *The Southern Lumberman* (Nashville):

"Lumbermen throughout the States of Mississippi, Georgia, and Florida should eagerly cooperate with the Forestry Departments in those States, which, acting in cooperation with the American Forestry Association, have just launched a three-year educational campaign to discourage the destructive habit of burning the woods which is so prevalent throughout the South.

"It is surprising to what an extent the rural population of the Southern States is wedded to the idea of burning the woods at regular intervals. They have been brought up to believe that such practice improves the grazing, and results in other benefits, and it is an exceedingly difficult matter to disabuse their minds of their misinformation on this subject. Most of the Southern States have stringent laws against burning the woods. In fact, it will be found that the very earliest lawmaking bodies in these States recognized this as an evil, and enacted laws to prevent it. Such laws, however, are difficult of enforcement, and particularly so when the people affected regard such regulations as restrictive of their personal rights and detrimental to their welfare.

"Education is the only effective way in which to attack this problem, and the campaign now under way, backed with a fund of \$150,000, should go a long way toward teaching the people the truth in this connection. Commenting on this activity a recent editorial in *American Forests and Forest Life* said: 'It is no easy task, but the rewards will be proportionate to its difficulty. The Southern pines are among the best timber trees in the world. Nowhere are there better forest-producing soils than in the great "piney woods" region; nowhere is forest reproduction more prolific; nowhere is timber growing more vitally important to the building up of rural prosperity. Yet nowhere is the vice of woods-burning more deeply ingrained in prejudice, superstition, and ignorance.'

"On account of its climatic and other natural advantages, the South should be the country's great reservoir of timber for all time to come. It cannot, however, achieve its proper destiny as long as the people burn the woods. If the proper public consciousness of this evil can be stimulated by the educational program now under way, it will be one of the greatest things for the Southern lumber industry that has ever been accomplished."—*Literary Digest*.

PRESIDENT LIGHTS NATIONAL CHRISTMAS TREE

President Coolidge lead the nation again this year in its Christmas Eve ceremonies by lighting the National Community Christmas tree at Washington, D. C. The tree was presented to the Nation in 1925 by The American Forestry Association. The President's holiday greeting to the people of the country at the ceremonies was broadcast over a nation-wide radio hook-up



Bryce Canyon Abounds in Fantastic Natural Carvings—Castles with Turrets and Towers Rise in Splendor, but the Amazing Thing is the Color. The Spires and Peaks Flame with Brilliant Pink, Coral, Red and Orange, Softened by Caps of Cream and Yellow. Sunrise and Sunset Imbues Each Distant Spire with Living, Glowing Fire

The New Bryce Canyon National Park

By STEPHEN T. MATHER

Director, National Park Service

THE twentieth member of the National Park System took its place in the galaxy of great national reservations on September 16, 1928, when Bryce Canyon National Park was formally dedicated, and the new park was accepted on behalf of the American people. Nearly five hundred witnesses of the interesting little ceremony included officials of the United States Departments of Agriculture and Interior, United States congressmen, Utah officials, railroad executives, newspapermen, and many others.

Just the day before, the National Park had been established by the action of the Department of the Interior in accepting, on behalf of the United States Government, certain deeds which were necessary before the area could be given National Park status. This departmental action marked the close of several years' endeavors, and was made possible only through the cooperation of the State of Utah and the officials of the Union Pacific System.

The area first became a national reservation June 8, 1923, when upon recommendations of the Secretaries of Interior and Agriculture, President Harding proclaimed it a National Monument. The Monument was administered by

the Secretary of Agriculture because of the fact that it was contiguous to a National Forest and could be supervised by the forest officials. Attempts had been made previously to get legislation through Congress to make the area a National Park but without avail. The President's action in creating the Monument, however, made possible the protection of the remarkable scenic attractions of the area and prevented its commercial exploitation until action could be taken to make it a Park.

Just a year after the reservation of the area as a National Monument Congress did recognize the importance of Bryce Canyon and by act of June 7, 1924, authorized the creation of the Utah National Park, to include the same area as the Bryce Canyon National Monument, if and when all the lands within its exterior boundaries should become the property of the United States. Later, in February, 1928, a further act of Congress provided for the enlargement of the area to be included in the proposed park and the changing of the name to Bryce Canyon National Park.

The new park is an outstanding scenic feature of southern Utah, which is a land of matchless, colorful canyons.

Bryce with three others—the Grand Canyon, Zion and Cedar Breaks—offers a chain of spectacular but vastly different canyons which thrill, awe or subdue the beholder.

Already motor roads link the four canyons, and during the past year excellent progress was made on the construction of the Zion-Mount Carmel Road, which when completed will connect Zion, Bryce, and the Grand Canyon in such a manner as to make them almost a single unit from the standpoint of the motorist.

In all this land of spectacular canyons Bryce is unique. None of the other canyons has quite the same type of architecture, nor quite the same combination of colors. It is not a cleft or gorge between towering mountains, like most of our canyons. Rather it is a deep, horseshoe-shaped bowl extending down a thousand feet through the pink and white sandstones of the eastern Paunsagunt Plateau, three miles in length and about two miles wide. This great bowl or amphitheater is filled to the brim with myriads of fantastically-carved figures.

To describe Bryce, beyond the few facts and figures as to size and depth already given, is impossible. It must be seen to be completely realized. From the countless variety

of forms in the canyon it would seem that the imagination of some titanic sculptor had run riot and cut in the soft sandstone every figure and shape known to or dreamed of by man. No matter what you look for, you can find it in Bryce. Off on the opposite rim, silhouetted against the intense blue of the desert sky, lie castles with towers and turrets, moats and high walls; and even whole feudal cities may be visioned, and villages clinging to the cliffs which remind one of those picturesque settlements the Mediterranean traveler sees on the hillsides of the African coast.

Interesting as are the fantastic natural carvings of Bryce Canyon, the color is even more amazing. The spires and peaks flame with shades of pink, coral, red, and orange, tipped and softened by caps of white, cream, or pale lemon. Contrast is given by the haze which in the distance deepens to purple, by the brilliant sky above, and the greens of the foliage, deep and dark in the trees on the rim and soft and pale in the bushes clinging to the soft rock of the canyon walls. Sunrise and sunset make the fantastic canyon formations glow and flame, while with the canyon between the beholder and the lowering sun, every distant spire seems to hold a living, glowing fire.



Forest Trail

In and out among the trees
My wandering white road bends;
I wonder where it comes from
And where its journey ends.

My cot is on the hillside;
The white road passes by
And trails its way to somewhere
I often wonder why.

Grave pine trees march beside it—
The little road, I mean—
And footprints in the drifting snow
Make furrows in between.

Its path is like a vagrant brook
That turns, and twists, and bends—
Perhaps it just goes on and on
And never really ends.

—William Thompson

FOREST PEOPLE

First Aid to the Young Elk

A Washington Girl Catches "Eepers" Alive to Save Them from Starvation

By HOLLIS B. FULTZ



JOHN HUELSDONK with his wife settled in the Hoh valley, Washington, thirty-five years ago. His wife was the only white woman of the region, for the Hoh was then and still is a frontier, reached only by pack trail. When, a few year ago, John Huelsdonk sent his daughter Doris out of the primeval forest along the Hoh River to the State College, he little dreamed that she would want to return to her wilderness home to live. After her education, the father reasoned, she would stay out in the world, away from the hardships of the frontier. But Doris thought differently, and home she came to her sisters and the cabin in the woods, to engage in the unusual occupation of catching young elk

alive for the game department of the State of Washington.

John Huelsdonk, after he had exterminated the roving timber wolves of the Hoh, had made some money raising cattle, but Doris came home to find the ranges eaten bare by the elk herds, which, protected by the state game laws, had increased so rapidly that they were actually dying of starvation. The Hoh watershed, probably fifty miles long and twenty miles wide, contained more than 6,000 of the huge animals. The state game commissioner, unable to have a law passed that would permit the extermination of a portion of

the herds, decided to transport them to other mountain regions. It was, of course, an impractical thing to remove the adult animals since the Olympic elk are not of a tame variety.

So Doris and her younger sister,

Lena Huelsdonk, who since babyhood had romped and roamed

through those giant firs, following the hounds, shoot-

ing rapids in Indian

canoes and using fire-

arms with the skill of

the huntsmen, were

given a contract for

the taking alive of

thirty baby elk.

Dressed in hiking

clothes, carrying a

pack containing lunch, kodak, and ropes, and with

an extra rope swung from the

waist for emergencies, each morn-

ing they sallied forth. Most of the

nights the girls were able to sleep at

home, since a mile's hike put them

in the elk country.



Doris and Lena Huelsdonk, in the orchard of their ranch home, with a band of baby elk

No fixed method could be adopted for the capture of the "eeper"—the local name for the elk calf—because they do not always act the same under similar circumstances. It was always a question of outwitting them—stealthily approaching until near enough to leap upon them much after the manner of predatory animals jumping upon their prey. And then it became a question of holding the struggling calf in their arms. When tracking was poor, or impossible, the girls used the "needle-in-the-haystack" method, roaming slowly through the woods, listening and looking. Sometimes for

days on end they found no "eepers" by this uncertain plan.

"Mother elk," says Doris, "have their own peculiar way of protecting their young, which does not add to the ease of locating them. Soon after the birth the cow strolls casually away and leaves the youngster to shift for itself, returning only at feeding time. For this reason the calf is seldom found with the mother, and when sighted the cow will bound away. We soon learned not to be fooled by this ruse, and when a cow was sighted in calving time we always started a search nearby for the fledgling. Sometimes, however, by some queer twist of instinct, the mother would decide to stand her ground and fight and then discretion became the better part of valor.

"Infant mortality among the calves is large, for elk mothers lose so many of their offspring by accident and predatory animals that they seldom do more than turn and take a look when the calf squeals for help. The calves were usually found lying down, apparently asleep, but very much awake when approached. Their sense of hearing is developed far above that of man or of domesticated animals and is one of the principal means of protection. The slightest rustle of leaves or the breaking of a twig will awaken the baby and make it alert, although the head be low and on the ground. They rely, also, upon the pro-

TECTIVE coloring of their body, much like nature's surroundings, making them almost impossible of detection, and they refuse to move until positive that they have been seen.

"Sometimes the 'eepers' are located by his squeal, if he has become old enough to follow the band, and yet unable to keep the pace set by the older elk. It is then that the baby relies upon powers of voice which equal ventriloquism for protection, for it is almost impossible to locate one by its voice when it has reached that age."

Beginning the work in early June, the two girls had fulfilled their contract by early summer, when the thirty elk were in the orchard pasture at the ranch and ready for delivery. Many of the calves had long journeys before they were placed in the barnlot at the Huelsdonk ranch, and sometimes the girls found it necessary to tie them in the woods over night or camp with them. Some came to the barnlot by ropes; sometimes the girls did the leading and sometimes the elk—in the opposite direction. Some followed quite readily and others never ceased to fight. When several had been captured the girls would send for horses and, swinging a baby elk in an improvised saddlebag on each side of a horse, bring them home in state.

Once at the ranch, feeding became the problem. The "eepers" were given milk from a pail and learned to drink about as readily as young Holstein calves.

After a month's feeding the "eepers" were driven out over the trail to Forks, twenty-two miles away, as gentle as any barnyard calf you ever saw, and later, from Forks, they were taken on to the State game farm.

In the oval the elk shown is too weak from starvation to rise. She died a day or two later, a victim of the overcrowding of the range, which Doris' work was aimed to alleviate



Doris, outfitted for the hunt, ready to go into the field



A splendid example of protective coloration. This little fellow will keep perfectly still against the tree, where he knows he is practically invisible, and it is this trick that makes hunting the baby elk so difficult



The Girdled Pine

(Continued from page 29)

where the diameter is eleven inches, the growth thirty-five years before girdling was nine and one-half inches, as to no growth at all thirty-five years after girdling. Below the girdle, two feet above the ground, at a diameter of fifteen inches, the growth of the tree thirty-five years before girdling was twelve inches. Thirty-five years after girdling the growth was only nine-tenths of an inch.



K. D. Swan

A close-up of the girdled section of the tree, where the bark was removed, supposedly by Selish Indians

As a contrast, the neighboring ungirdled pine at four and one-half feet above the ground, with diameter at twenty-four inches, grew nine and one-tenth inches thirty-five years before the other tree was girdled and seven and one-half inches thirty-five years after the girdling.

The only explanation of this surprising persistence of a completely girdled tree seems to lie in root grafting. This phenomenon is well authenticated, as the cause of stumps growing after the tree of which they formed a part has been cut. In the present case it was impossible to dig up the roots and check this theory without killing the object of the study. It is reasonable to assume, however, that the normal tree by grafting might keep alive some of the roots of the girdled tree. Water then could be taken in through the root systems of both trees and could rise to the crown of the girdled one through the undisturbed sapwood. The food manufactured in the crown would descend through the bark and cambium as far as the girdle. The amount available

for growth would obviously be less than in a normal tree, and this would account for the decrease in increment. Furthermore, food could be transferred down the bark of the normal tree, through the bark of the two root systems, and up as far as the girdle again. With so long a journey one would expect a greatly decreased amount of food available. Hence the exceedingly small increment below the girdle is consistent with this theory. So, too, is the greater growth on the side adjacent to the normal tree than on the side opposite it, for it is mainly the roots on the former side which would be fed by the healthy tree.

Irish Yew Tree Replanted Near Woodrow Wilson's Grave

AN unusually fine specimen of the Irish yew tree, which is very rare in America, has been transplanted to the grounds of the National Cathedral in Washington, where Woodrow Wilson is buried.

The tree was purchased by the St. Albans Guild of Washington from Clarence F. Hicks of Port Royal, Virginia, and has the symmetrical pyramidal shape common to



Brought from the picturesque little town of Port Royal, this Irish yew has joined the aristocratic company of trees in the Washington Cathedral Close

the yew, the branches being almost vertical and the growth dense with dark foliage. The tree measures twenty feet in height. In removing the tree a number of experts worked for more than a week, and extreme care had to be taken in the operation. It is reported that the tree was obtained by the Guild for the sum of \$1,000, one of the highest prices ever paid in this section for any single growing thing.

Vermont's Anchored Hills

(Continued from page 23)

plains themselves. Much of the cobble and large-stone debris came from the stream beds. That Vermont's hills for the most part were securely anchored with trees and herbaceous growth, ferns, and moss, and blanketed over with a sponge-like covering of forest litter, with a highly absorptive layer of forest-mold beneath, explains why only a part instead of all of the meadow lands of the flooded valleys were covered with erosional-debris of inert sand, gravel, and stones. This fortunate circumstance of forested watersheds also explains why these same fertile alluvial lands were not generally buried to hopeless depths instead of to a maximum of six feet. Furthermore, the presence of elms and other trees along the stream banks saved much fine alluvial land. Many of these steady trees were washed out, but not until they had withstood the furious waters long enough to save many acres of land. Others, held fast by deeply anchored roots, gave complete protection to the bottoms back of them.

Vermont's forests of mixed hardwoods, pine, spruce, and hemlock, with their understory vegetation, and ground cover of forest-litter form a covering which clearly exerts a tremendous influence as a water-holding medium and as an obstacle to flowing water. That no direct measurements of this capacity exist is unfortunate, since it leaves the relationship of vegetative cover to absorption and runoff in a position of uncertainty, about which there are many needless and distracting varying opinions.

The November flood was preceded by copious rains that probably had temporarily saturated or partly saturated the watersheds, so that when the heavy precipitation which

caused the flood came, it fell, to a very large extent, on areas that probably were unable to absorb very much of the deluge, and having no other place to go, the water, as a matter of course, went into the rivers. What part the vegetative cover played in delaying the runoff, obstructively, thus reducing possible flood heights, can not be accurately determined in the absence of reliable runoff data applicable to the various

types of the regional watersheds. It seems evident, however, that without the vast amount of vegetative cover (there was little bare land in the State at the time of the flood, since there was grass on the meadows and stubble in the fields) all the meadow lands of all the flooded valleys would have been buried to depths of many feet. This belief is based upon what generally happens when torrential rains fall upon bare uplands in most other parts of the country.

Vermont will carry on. Her lands for the greater part have not been irreparably damaged; indeed the State was most fortunate from the standpoint of area wasted. This refers chiefly to the damaged meadow lands. Upland erosion will continue to be a troublesome problem on numerous farms, a problem of increasing difficulty, until over-grazing has been controlled

and more land owners have made use of the tree-planting method of stopping land impairment by running water, wind, and sliding. It will be the part of wisdom for the State to encourage maintenance of good forests on watersheds and on upland not topographically or otherwise suited to cultivation, and all valley farmers should see to it that their stream banks are lined with not one but several rows of trees, for the purpose of anchoring their meadowlands against floods.

THE CAMP OF YESTERDAY



In a high-flung meadow, where the wild birds trill,
We pitched our camp near a murmuring rill—
In a willow-rimmed meadow, whose glorious sheen,
Taught the Creator of all to paint the emerald green.

'Twas a circle of color, neath beetling crags,
Whence the cohorts of dawn flung crimson flags:
With a lake in the center—of turquoise blue—
And a sward pinked with flowers of gorgeous hue.

With a rampart of firs, whose straight, slim spars,
Were mayhap intended to point at the stars
As the white scrubbed decks slow dip to the tide,
That beats so gently on Tahiti's side.

Now all beauty has perished, lone sentinels stand,
A gloom to our hearthstones, a mar to our land;
No sweet sounding bird notes, no bloom crested hill,
Now the blue rippling water is muddy and still.

For the grim fire demon his havoc has spread,
And the children of Nature are marked with the dead.
No beauteous splendor, no wealth of perfume,
Our glorious landscape is naught but a tomb.

Charles V. Brereton.

Association to Hold Annual Meeting in South

The Annual Meeting of the American Forestry Association will be held at Jacksonville, Florida, on February 27 and 28. Details of the program will be published later. Reserve these dates on your calendar now, and notify the Association of the number included in your party, so special railway and steamship rates may be made for you.



Department of Science Education

Conducted by ELLIS C. PERSING

Natural Science Department, School of Education, Western Reserve University

How Teachers May Use Current Articles in This Magazine to Supplement Nature and Science-Study Textbooks Will Be Outlined in This Column Each Month by Professor Persing

THE suggestions for using the articles in this magazine will be given in a form that can be used directly by students and teachers in the upper elementary grades, the Junior High School and Senior High School.

Textbooks and courses of study serve as outlines for the science work in grades one to twelve inclusive. These outlines of essentials are necessary and it is not our plan to displace textbooks in any field of subject matter but merely to suggest a wealth of supplementary reading and visual materials which will enrich the present course and relate it to the experiences of the pupils. We are certain that the materials found in *AMERICAN FORESTS AND FOREST LIFE* from month to month will help acquaint pupils and teachers with the world about us and help them to keep up to date on topics of our forests and wild life.

Elementary Schools

Birds—The Tale of a Canadian Goose—Yu - Ya - Neri by Frederick L. Coe (Page 3, this issue).

Read this fascinating story of a Canadian goose; then be prepared to tell how this goose lived in the Sanctuary in upper Connecticut.

Christmas Greens—Keeping Christmas Green by P. L. Ricker (see page 727, December issue).

You have heard that our Christmas Greens are disappearing and that you should decorate with artificial materials. This story gives you some facts on the topic.

Forests—"The Little Preacher" by W. C. McCormick (Page 24 of this issue).

Have you ever wondered how you could help conserve our forests? You will be interested in what children in some of the southern states have done.

Bears—Rusty and Ben by Stephen Doering (Page 725, December issue).

Do you like bear stories? Here is the story of Rusty and Ben. You will be interested in their fight with the wolves.

Armadillo—Beautiful Baskets from Ugly Hides by Ruel McDaniel.

Unless you live in one of the southwestern states you may not have seen an armadillo; but you may now buy beautiful baskets made from his hide. This tells how Mr. Charles Apelt ran upon a little animal that suggested a new business for him (Page 44 this issue).

Hikes—"Our Need of the Outdoors" by F. J. Clifford (Page 27, this issue).

Are you planning a hike for some day this winter?

Here is a thrilling account of a winter day in the forest.

First Aid for the Young Wild Elk, by Hollis B. Fultz.

The name for an elk calf is "eepers." In the pictures with this article you will see young elk. How large are they? Here is the story of Doris who lived in the Hoh Valley. She went to

college and then returned to her wilderness home to catch eepers.

After you have read this article answer these questions.

1. Why did Doris begin catching young elk?
2. How do the "Mother Elk" protect their young?
3. Where did she usually find the "eepers"?
4. How were the young elk brought home?
5. How were they fed at the ranch?
6. What was later done with the "eeper"?

(Page 39, this issue.)

Junior High School

Trees—"Trees of the Bible:" "II. The Oaks of Palestine" by Adelaide Borah.

Do you know the species of trees mentioned in the Bible, and the passages that refer to them?

This is the second of a series of articles that will interest pupils in biology classes.

The first article appears in the December issue, page 715. Are any of the trees mentioned in these articles found in America? If so, where? (Page 3, this issue.)

Forestry—Arkansas' Forest Paradox by Franklin W. Reed.

The forest resources of a state are given, and a plan described for creating a department of forestry. How do these facts compare with the conditions in your state? Are the forests of your state menaced by fire?

Are the lumbermen cooperating with your state forest officers to stop fires and build up the forests? (Page 7, this issue.)

Products of the Forests—Using all but the Whispers of the Pines, by C. L. Hamilton (Page 739, December issue).

Forest products is a topic for lessons on conservation. This story tells how useful products are made from what was once considered scrap lumber. How is Nu-Wood made?

Senior High School

Wild Animals—"Alaska's Reindeer-Caribou" by W. B. Bell (Page 16, this issue.)

After you have read this article answer these questions:

How do reindeer differ from caribou?

How many reindeer are there in Alaska today?

What uses are made of them?

What has the United States Biological Survey done for the reindeer?

What has been gained by crossing reindeer and caribou?

Place the beautiful cover picture on your school bulletin board.

National Parks—The New Bryce Canyon National Park by Stephen Mather.

Have you ever looked at pictures of our National Parks? Here is a view of our new Bryce Canyon National Park. You will not find it in your latest science books. This land was not a park until September 16, 1928. From this article you will learn how we obtained the land and how it is different from other parks.

On an outline map of the United States show the location of this park by a small red square (Page 37, this issue).

TO THE TEACHERS:

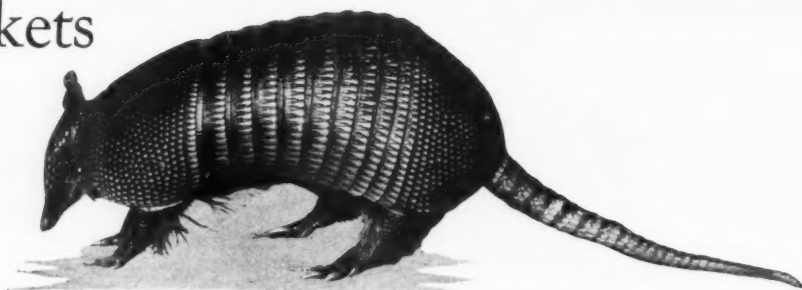
If you are in need of interesting articles and visual materials in connection with your science, geography, language and reading lessons each month, just turn to this section and find the article and pictures adapted to your grade.

Beautiful Baskets

from

Ugly Hides

By RUEL McDANIEL



The Armadillo, Queer Little Creature of the Southwest, Makes His Contribution to Beauty and Utility



CHARLES APELT, of Comfort, Texas, has one of the most novel "factories" in the world. By utilizing his early knowledge of basket weaving, learned in Europe, he transforms the ugly coat of the Texas armadillo into a work of art. He makes pelts into baskets.

An armadillo is a clumsy looking little animal with a thick shell, like a terrapin; but a long, tapering tail and a pointed nose give it the appearance of an opossum. His whole upper body is covered with a shell armor, fitted on him in sections, band-like. The armor even extends in a lesser degree to the very tip of his tail and to the end of his nose.

This brownish, thick shell, when removed from the animal and cured, is easily polished to a beautiful hue, and it lends itself readily to shaping. Thus, skins may be polished and shaped in such an artistic manner that when given the final touches they are

transformed from the ugly armor of clumsy little animals to baskets, flower pots and trays that adorn the tables and shelves of homes all over the world. Creating this transformation is the business of Charles Apelt.

Mr. Apelt was the son of a European basket weaver, and he grew up at a weaver's bench. But the humdrum of basket weaving did not appeal to him, and he came to America and eventually settled in southwest Texas, where he became a good rancher.

But it seemed that fate, or whatever you want to call that something which seems to guide the destinies of men, saw things differently. Just as Apelt was prospering contentedly on his ranch, a strange little shell-covered animal ran in front of him and changed his whole career.

Early one morning, while walking near his home, he ran upon the most curious little animal he had ever seen. He took a stone and threw



Baskets in the making—these are the armored shells which encased the funny little armadillos. Thick and brownish in color, they have been dried, thoroughly cleaned and will be polished and shaped in various artistic basket and tray forms, before being satin-lined and sent out to tempt the retail buyer of souvenirs and oddities

at it, but the animal simply rolled over, got up and continued on its way. He threw another stone, then another with the same effect. Finally he landed a blow on its head and the freakish creature failed to rise.

He took it home and skinned it, leaving the pelt in the sun for an hour or so. It was then he noticed that it curled up into a peculiar basket-like shape; the long shell-like tail curved over the hollow portion of the shell toward the nose. Standing there, wondering what such an animal could be and why it occupied a place on the earth there suddenly came to Mr. Apelt a vision of the skin, washed, polished, and artistically finished into a neat little basket. It was his old basket-weaving training that was working on his imagination.

He polished the skin, twisted it into a desirable shape, and let it completely dry. The result was a delightful surprise. The product was even more artistic and practical than he expected.

By inquiring of neighbors, Mr. Apelt learned that the curious little creature was an armadillo, a native of Central

and South America, transplanted in the hills and low mountains of southwest Texas.

So Mr. Apelt hunted others, skinned them, and treated their shells in a like manner. He offered a few for sale and found that people would buy them if given the opportunity.

Today Mr. Apelt has a modern factory, or plant, near Comfort, Texas, where he does an international business. From the sale of his first baskets in the curio shops in the border towns in southwest Texas he has extended his unique business to all parts of Europe, South Africa, South America, and the Orient. More than sixty men are regularly employed in his plant skinning the animals and transforming their ugly hides into practical works of art. Half a hundred dogs are often used in hunting down the armadillos at night.

When cornered by a dog, the armadillo lies flat on its back and fights with its long, sharp claws. The dogs are muzzled to prevent them from damaging

the shell, so the little animal usually offers good resistance and holds its ground until killed by the hunter.

In the February Issue—



A unique little soldier of Brazil, with an indomitable will to command, conquers a vast, dim, unexplored, tropical forest empire without any weapon but clothes. The story of his daring conquest is one of the most astonishing in the history of exploration. Read this dramatic narrative of the tropical forests in the February issue of *American Forests and Forest Life*.

"Fashions" for the Naked Savage

By Ignatius Phayre

There will also be—

SALVAGING THE CHESTNUT, by Franklin W. Reed, a new and interesting light on a much discussed subject. WHAT IS TO BECOME OF OUR NORTHERN ELK HERD, by William Rush; an analysis of one of the country's great wild life problems. WHAT FORESTS MEAN TO HAWAII, by Otis W. Freeman; a revelation of how the jungle-blanketed forests combine beauty and high service in America's most distant Territory; and many other timely and interesting articles and stories.



In This Magazine Thirty Years Ago

Excerpt from the 1898 report of the Executive Committee of The American Forestry Association.

"The most important work of your Committee during the past year has been its contribution to the successful endeavor to ward off the threatened attack upon the forest reserves set apart by President Cleveland, which had been suspended for one year prior to March 1, 1898. In the last Sundry Civil Bill the Senate inserted a proviso suspending the President's order setting apart these reserves, and restoring them to the public domain. Your Committee, on April 2, decided to take action and sent out circular letters to all members of the Association, urging immediate protest. On April 13 a memorial was sent to all members of Congress, urging that the Senate amendment, if adopted, be limited to one year. Still later, specific amendments to the Sundry Civil Bill were suggested to the committees of the House and Senate. The efforts of this Association were in line with and were assisted by those of officials and private individuals, and the combined protest had its effect. The House refused to agree to the Senate amendment, and the reservations were saved."

The Lost Christmas Carol

(Continued from page 12)

clusion. You were hungry for something you could not reach in your Boston environment, so you came to the forest and solitude to get it. What is it?" He reached over and stroked the Stradivarius—tenderly. "It came out of this tonight. For months you have absorbed it from the forest and lowly stars."

He got to his feet, very slowly, and grasped the violin in tender hands. "Ten years ago, in Boston, I fought to release chords and melodies and sketches that gnawed at my soul, but I could not find expression. So I came as you came, to the trees and snow, to clear waters and chattering wild life. I arrived here Christmas night, and the pang of aloneness drove me to my jewel. I played and played, with Christmas full upon my heart, until there came a new hunger. I would interpret for the world new notes for the Christmas hymnal. I would inspire a new meaning of Christmas through music; I would give a message as it had been given to me that lonely Christmas night."

He raised the violin to his chin and touched the strings with his bow, resembling for all the world a dirty beggar fiddling along the streets of Boston. But when he began to play, the room seemed charged with it—the cold forests that surrounded the cabin seemed to echo the notes, brilliant and bewildering, to every nook and corner where the spirit of Christmas held sway. Then he stopped abruptly, and for the first time a genuine smile crossed his grizzled features.

"That first Christmas night here—ah, the loneliness, the hunger for companionship." He looked away as soft memories crossed him. "But I was inspired. All through the night I played and put down notes, and when dawn came, there, on the table before my fire, was my composition—a perfect blending of all that Christmas means to a soul hungry for companionship. I was crazed with joy, for I had found in a single lonely night that which I had been searching eternities for—the key to my creative self."

Fire flashed from his eyes as he again turned on the ranger. "But you are undoubtedly wondering what all of this has to do with the stories that have been told about me." The old man looked again into the fire as the ranger held his silence. "It was dawn, I had rekindled my fire, the notes of my composition lay on the table beside me, and I dozed. Suddenly a blast of cold air brought me to my senses as a man unknown to me thrust the door open with a cheery 'Merry Christmas.' Christmas! Ah, my precious notes. I reached down for them, but my hand encountered only the rough boards of the table. My notes were gone. Fear seized me as I began a frantic search, and I suppose I became insane when my eyes fell upon the fireplace just as the flames devoured them. My Christmas carols had been reduced to ashes."

For a long time he held his silence, and the ranger could see that his head was bowed. After a while he spoke, but harshly. "That cold blast swept my notes into the fire. The man who opened the door was a forest ranger. He was full

of the spirit of Christmas, but I cursed him for it. I damned and redamned his very soul; I hurled insults at everything he represented. I vowed vengeance. For was he not responsible for that which had gone from me forever—my Christmas carol?"

The old man sank again into silence and the ranger, sensing the tragedy that had befallen him spoke in sympathetic tones. "I can appreciate your loss, sir, which at the time seemed just reason for—for your transgressions."

"Transgressions?" The old man looked up. "Then, after all, you don't understand—and you, a pupil of Ivan."

The ranger spoke a bit sharply. "A pupil of Paulinski, yes; but also an agent of the government. I am sympathetic, sir; but I have a duty to perform."

"You believe then, those stories!" the old man asked.

"You vowed vengeance," the ranger reminded.

"Words," cried the hermit, scornfully, "just words. You have not the temperament of a master." He came to his feet with effort. "But you shall see for yourself. In less than an hour your mission here will bear fruit—perhaps."

He raised his precious fiddle to his chin. "But my interpretation of Christmas—I shall play it for you."

The ranger was astonished, "I thought you had lost it?"

"Ah, so I did, my first composition. But am I not the teacher of Ivan, the master? There is another, a greater interpretation—ten times greater. Is this not my tenth Christmas of utter loneliness?"

He began tempestuously, playing with all the artistry and feeling that was naturally his. Music! The ranger began to absorb it as the dry mountain slopes absorb a gentle rain. The Stradivarius called relentlessly to all the world to worship the day of Christ's birth beneath the gallant spruce, drooping with a hundred snows; told the story of His birth with tenderness, with undivided fire; sampled the moods of a thousand races with harmony, melody and chords.

Never had the ranger heard such an appeal to the hearts of mankind; never had he heard such music. The aged fingers of the old hermit worked with the ease and grace of the master. A soul that had been harassed by ten long years of denial and toil wailed its lamentations, uttered its cry of triumph. Then, of a sudden, the music stopped, and the eyes of the outcast turned toward the door, his features again a graven image.

Only a moment did he wait before the hinges creaked and the door was thrust open. With a cold blast of wind two men, their eyes sulking, were pushed forward by a third man, who wore upon his face the happy smile of triumph.

The old hermit stepped forward. "Ah, warden, my good friend, you have succeeded. A Merry Christmas, Red; and to you, Slim."

The ranger stepped forward, puzzled. "These men, I know them, are the ones that—"

"Entered my humble cabin," the teacher of Paulinski broke in. "But that was just a clever idea of my good friend,

the game warden. He set the trap and has been watching it for weeks. By the way, Mr. McNamee, the warden knows a good fiddle when he sees one. It was the Stradivarius, eh, warden, that held your faith in me."

The game warden smiled. "It was a matter of theory that made me suspect Red and Slim were guilty of the crimes attributed to you. And it was a good theory, for they owned up to it down on the trail while they were admitting killing the deer yesterday."

He placed his hand on the old man's shoulder. "It was not the fiddle that made me doubt the stories. It was the soul that makes it more than a piece of wood. No man can interpret Christmas as divinely as you have and be guilty of petty transgressions. I salute you, my friend."

The old man's eyes dimmed. "For your expressions the world is yours. What will you have?"

The warden flung himself down in the antique chair. "Play," he said.

Forestry Appropriations as Recommended by Bureau of the Budget

By G. H. COLLINGWOOD

Forester, The American Forestry Association

THE several forestry laws were given hearings before the House Sub-Committee on Agricultural Appropriations during the first week in December. The hearings were arranged by The American Forestry Association. At this time the recommendations of the Bureau of the Budget were made known and friends of forestry learned that, while the total appropriation exceeds that of 1929, many of the items are considerably less than the recommendations of the National Forestry Program Committee and supporting agencies as presented to the Director of the Bureau of the Budget at the public hearing last October.

In the face of the fact that Congress authorized \$3,000,000 for purchasing forest lands in the eastern half of the United States when it passed the McNary-Woodruff Law, the Bureau of the Budget has recommended an appropriation of \$1,900,000. This is \$100,000 less than the appropriation for the present fiscal year and \$1,100,000 less than the appropriation authorized by the Act. If no more is available during the next fiscal year, the program on which the McNary-Woodruff Law was drawn will be considerably handicapped, and the progress of land purchase will not be materially accelerated.

Of the amounts recommended under the Clarke-McNary Law the one most severely hit was for cooperation with the states in preventing forest fires. The National Forestry Program Committee recommended that the present appropriation of \$1,200,000 be increased by \$400,000 to a total of \$1,600,000. The Bureau of the Budget has recommended an increase of \$89,098. This provides a ridiculously small increase for each of the cooperating states and scarcely permits the Federal Government to match one dollar with every three dollars appropriated by states and private agencies for forest fire control.

Increases requested for cooperative distribution of forest planting stock and for cooperation with the states in financing farm forestry extension were each severely curtailed. The amount approved by the Budget Bureau for tree distribution is \$82,500, an increase of \$7,500, and that for forestry extension work \$65,000, an increase of \$5,000.

The McNary-McSweeney Law went into effect this present year carrying no additions to existing appropriations. Before the passage of the law those behind it entered into an informal agreement that no appropriations would be asked until the fiscal year beginning July 1, 1929. From the beginning the plan behind the law has contemplated initial appropriations of approximately one-tenth of the authorizations, to be increased each year so that by the end of about ten years the full authorization may be reached. Friends of forestry were naturally surprised to learn that no increases are recommended for items covering forest insects, forest tree diseases, and forest fire weather. These items therefore stand the same as last year, namely diseases, \$98,500; insects, \$174,570 and fire weather, \$23,600.

The several forest experiment stations scattered over the entire

country received \$352,000 during the present year. This work is now taken over under the McNary-McSweeney Law and request was made for an increase of \$66,300. This was cut by the Bureau of the Budget to \$30,000, which is scarcely enough to take care of the increased demands of a single station.

Present appropriations for carrying on work at the Forest Products Laboratory, Madison, Wisconsin, amount to about \$505,000. An increase of \$50,000 was requested, but the recommendations received by the Appropriations Committee are for \$32,404.

Two new items include the forest survey which will probably be started in the Northwest and an economic study of forest possibilities to be started in the South. The timber survey needs at least \$75,000 to be adequately started, but the recommendations are for only \$25,000; while the economic study should be at least \$25,000 and the recommendation is \$15,000.

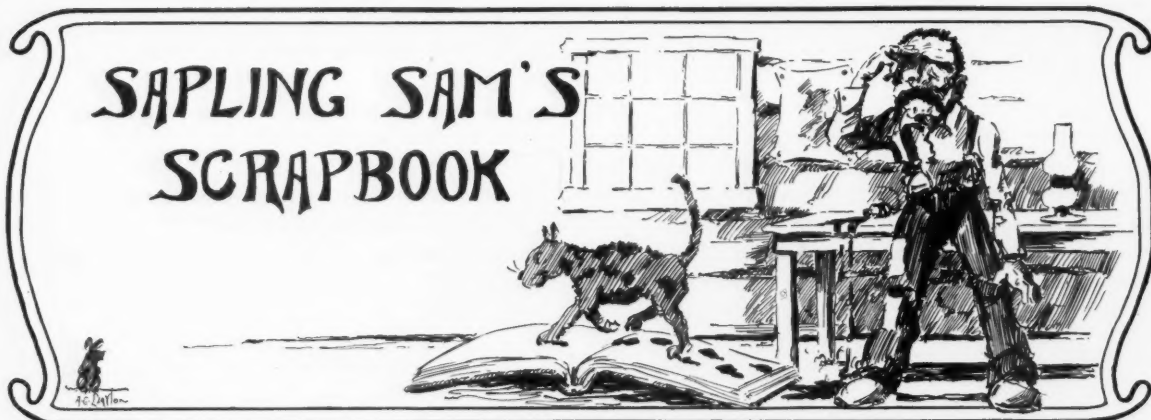
Studies in wild life, in relation to forest management and to stream pollution need at least \$15,000 more, but the recommended increase is \$7,957, which will bring the total amount to approximately \$18,000.

So in every case the amounts requested have been severely pruned by the Bureau of the Budget. The House Subcommittee on Agricultural Appropriations, with Representatives L. J. Dickinson, of Iowa, Chairman; John W. Summers, Washington; James P. Buchanan, Texas; John N. Sandlin, Louisiana, and E. H. Wason, New Hampshire, has given very fair consideration to the pleas of men interested in forestry from all parts of the country and to a representative group of congressmen, including Representatives John McSweeney, of Ohio; Scott Leavitt, of Montana; Don B. Colton, of Utah, and Harry L. Englebright and Joe Crail, of California.

Among those who came from private life to plead for appropriations more nearly commensurate for the job were former Senator Lenroot, of Wisconsin, who spoke particularly in behalf of bringing the appropriation for forest land purchase up to the authorization of \$3,000,000, as stated in the McNary-Woodruff law; R. S. Kellogg, of the National Forestry Program Committee, who discussed the items at length and gave reasons for the appropriations recommended by that committee; Lieutenant-Governor W. I. Nolan, of Minnesota, who spoke for the appropriations desired for forest land purchases, forest experiment stations, and for cooperative fire prevention work; Philip W. Ayres, of the Society for Protection of New Hampshire Forests; Tom Wallace, former president of the Southern Forestry Congress; Seth Gordon, of the Izaak Walton League; Ivan E. Goodner, of the Los Angeles Chamber of Commerce; Carl W. Bahr, of the National Lumber Manufacturers Association, and Barrington Moore, of the American Ecological Society, C. F. Speh of the Pine Institute, and G. H. Collingwood of The American Forestry Association.

The hearings carried through until noon on December 7.

SAPLING SAM'S SCRAPBOOK



Personal Injury or Damage to Property?

The Coronado Forest, says *The Daily Bulletin*, reports a case of a lookout having some teeth knocked out in an accident incurred while on official work. It now appears that the teeth knocked out were artificial. Question: Is this a case for the compensation commission or one of property damage under Reg. A-5?

Ain't Nature Wonderful?

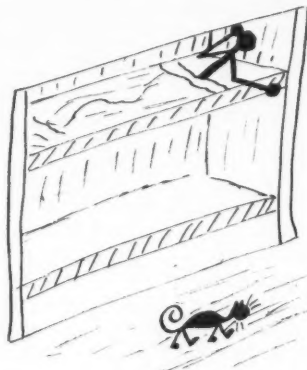
J. N. Rogers, in charge of a limestone quarry in the White Mountains north of Laws, gives us some interesting facts with regard to his industry. Since the first of the year they have shipped 18,000 tons of limestone. This is "milled in transit" at Cartago, and the carbon dioxide gas released in the burning is used in the manufacture of soda. He states that in the burning process 42 per cent of the rock, by weight, is released as carbon dioxide gas.

In the manufacture of soda, the gas is mixed with brine. The carbon dioxide atoms immediately go a courtin' with the sodium oxide atoms, and kinder allow their electrons to mingle together, and the result is sodium bicarbonate. So next time you doctor that heartburn of yours remember that Dame Nature erected limestone cliffs in the Chalfant Valley and had Owens River, down through the centuries, deposit bit by bit the saline material in the bed of Owens Lake, that man might later bring these together to afford temporary relief from the discomfort caused by over-stuffing with the victuals produced on the fertile lands between.—*Inyo Inklings*.

Hopeful National Forest Settler

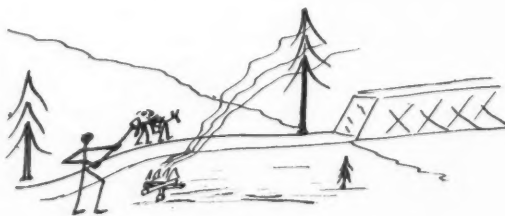
A man at Silverton, some 15 miles above the wagon road on the south fork of the Stillaquamish, has built a house with a

two-car garage. He ought to qualify as one of the world's foremost optimists.—*Six Twenty-Six*.



Oh, What a Headache!

The lumber-jack had just staggered into camp after a week's trip out to spend his stake. The liquor had been worse than usual, not even good enough to keep him from catching cold. He rolled into the bunk to sleep it off. Awaking from a restless sleep a few hours later, he saw the old cat pacing up and down the bunkhouse floor. His hoarse voice arose in protest: "My God, Cat, don't stomp so!"



Prize for Putting Out Fire

The other day Charles Hamilton started for Mt. Meadows with his string of mules, says K. P. McReynolds, of the Umpqua National Forest in *Six Twenty-Six*. Along the trail about half a mile from the river, he found a fire of some three square feet in size, evidently the result of some fisherman's carelessness. Charles rolled off his horse and proceeded to get it under control. This accomplished Charles did not want to linger longer to put it out as he was in a hurry so he shoveled the whole thing into a "forkie," put it on his mule "Moonshine," hauled it to the river and threw it in! Do we win?

Over the Phone on the Olympic Forest

Mrs. Mapes (to ranger husband on a forest fire): "When will you be home?"

Ranger Mapes: "I don't know, but be sure and put our child in school when she's old enough."—*Six Twenty-Six*.

Closed File Classics from the Forest Service

Following are reports from three old-time rangers reporting on June 11 homestead cases:

No. 1—No possibility of developing any water. The applicant will be lucky if he can develop as much as he can drink.

No. 2—This tract is not needed for the contamination of the city's water supply.

No. 3—Prior to the submission of proof by the claimant his home was on the claim except during short durations. While on the durations the claimant was in San Diego earning a livelihood as a violinist.—*California District News Letter*.

Wild Life in the City

There have been many fast ones put over by the country kid on his more sophisticated city cousin, and now *Specks* comes through with this one.

The city boy was bragging about the accomplishments of his father to his country cousin. "My father," he said proudly, "is an Eagle, an Elk, a Moose and a Lion."

To which the country boy replied, "What's it cost to see him?"

Oh, to be a Fish

The latest popular song, we are told, is "No Matter How Fast a Fish Swims, It Never Sweats."



National Game Conference Endorses Southern Forestry Educational Project

Commendation of the southern educational work of The American Forestry Association was given in a resolution passed by the National Game Conference at its fifteenth annual meeting held in New York, December 3 and 4. The resolution, after referring to the project "as a wise and far-seeing educational campaign in the interest of forest conservation and fire prevention" suggests that the officers of the conference ask the officers of the Association "for an opportunity to consider with them the formation of a plan under which the conference can cooperate with the Association" in the game conservation phase of the work. With colored slides, Ovid M. Butler, Secretary of the Association, illustrated how the work is being carried out in the states of Florida, Georgia and Mississippi by the use of motor trucks equipped with motion pictures and other educational material. It is expected that the action of the conference will lead to a definite plan of cooperation between the Association and wild life interests whereby both forestry and game restoration will be fully represented in the educational effort. The Fifteenth Game Conference, one of the best ever held, brought together conservation authorities from all parts of the United States and Canada. The conference was held under the auspices of the American Game Protective Association. George D. Pratt, of New York, President of The American Forestry Association, was chair-

man. Officers for the next year were elected as follows: Chairman, I. T. Quinn, of Alabama; first vice president, Ross L. Leffler, of Pennsylvania; second vice president, Keith McCause, of Missouri; third vice president, W. W. Cory, of Canada; fourth vice president, Wm. L. Findlay, of Oregon; secretary, Carlos Avery, of New York.

migratory game; the preservation of Cheyenne Bottoms in Kansas as an inviolate refuge for migratory waterfowl, and the creation of the proposed international wilderness area in the Superior National Forest, Minnesota, and the Quetico Provincial Park, Canada. The following program of game conservation and restoration was adopted

for the ensuing year:

Scientific Research—Continuation of the grouse investigation, and the promotion of several fellowships to speed up and extend its work. Encouragement of a similar investigation of prairie chicken and other species subject to shortages or fluctuating abundance. Cooperation with the Biological Survey in extending the Georgia quail investigation into other states. Encouragement of interstate programs for research in game problems by the state universities and agricultural colleges.

Federal Legislation—Promotion of the passage of a migratory bird conservation bill which shall establish the principle of game refuges, and the passage of appropriation bills for Cheyenne Bottoms bird refuge and elk refuges.

State Legislation—Cooperation with state game commissions and organized sportsmen in all progressive programs.

Cooperation of Sportsmen and Landowners—Promotion of plan adopted at Fourteenth National Game Conference.

Control of Predatory Creatures—Continuation of effort to determine practical and

Ezra Meeker, Oregon Trail Pioneer, Dies

Ezra Meeker, President of the Oregon Trail Memorial Association, and one of the last survivors of the covered wagon era, died at Seattle, Washington, December 3. He was ninety-seven years old. His last visit to Washington, D. C., in 1928, was to voice his objection to a plan to build a cableway to the summit of Mount Hood, in Oregon, before a conference called by Secretary of Agriculture Jardine. The pioneer believed that the Mount Hood region should be kept in a wilderness state.

Mr. Meeker, who first crossed the Oregon Trail in 1852, in a covered wagon, and who has traversed the country by almost every mode of conveyance since then, including the airplane, was born in Huntsville, Ohio, in 1830. In 1906 he started the movement to preserve the Oregon Trail, establishing twenty-three markers at prominent points. Upon his arrival in Washington he was received by President Roosevelt. Mr. Meeker was President of the Pioneers of America, and was the author of many books, among which were "The Oregon Trail," "Ox Team Days," and "Seventy Years of Progress in Washington."

The Conference went on record as favoring the formulation of a national policy of wild life conservation and restoration; passage of legislation creating federal wild life sanctuaries; the conservation of wilderness areas adapted to hunting, fishing, packing, canoeing and wild life photography; more effective cooperation between Mexico and the United States in the better protection of

scientific basis of classification, and effective methods of control of destructive species, if necessary resorting to regional lists for species which are harmful under some conditions but harmless in others.

International Recreation Park—Promotion of plans for permanent preservation of Quetico-Superior wilderness areas, and of a system of wilderness areas in other National Forests and National Parks.

Control of Pollution—Development of plans and methods for prevention and control of pollution of lakes and streams and coastal waters.

Game Breeding—Encouragement of propagation of bobwhite quail and Hungarian partridge.

Surveys—Continuation of local small game survey, wild turkey survey, and cooperation with the Biological Survey in waterfowl census and woodcock survey. Initiation of a survey to determine the status of Jacksnipe. Promotion of schools to give technical training in administration of game, to perform research, and to coordinate game management with other forms of land use. Promotion of training camps for conservation field officers.

The greatest deficiency, however, in the east is in the share taken by the private owner. Eastern forest owners are doing far less than western owners to protect their lands from fire, probably mainly because of the lower property risk involved.

"Two possible ways are open to reduce or eliminate this deficiency—inducement or requirement," says Major Stuart. "In the west the method of requirement has been developed. Timberland owners in the state of Washington, for example, who do not voluntarily contribute on an acreage basis to the protective associations have the cost of protection levied against their holdings by the state, as part of their taxes.

"Obviously, in regions where the present tax burden is producing or threatens to produce extensive abandonment of title, a required contribution toward the cost of protection would tend to increase abandonment. The application of such requirements in the east should, it is believed, take place only as of Interior, attended by Carol J. Lomen, part of a comprehensive state policy of forestry, with the state prepared to take over the land if the private owner is unwilling to retain and partly meet the cost of protecting it and can not dispose of it to some one else who will."

More Publicly Owned Forest Land Needed in East, Says Chief Forester in Annual Report

The protection of critical watersheds and the reclamation of idle and nonproductive land in the eastern half of the United States requires a very material extension of public ownership of forest areas, Major R. Y. Stuart, Chief of the United States Forest Service, points out in his annual report.

"The only forest lands on critical areas that are now contributing full service from the standpoint of flood control are those embraced in public forests and parks," Major Stuart says, "and a substantial increase of public forest-land ownership and administration will be essential to the adequate regulation of stream flow on the headwaters of the Mississippi and its principal tributaries. The same is true elsewhere. Altogether there are unquestionably scores of millions of acres in the east that are subject to harmful erosion and seriously accelerated stream flow discharge through impairment of the forest cover, and to a degree which will presumably necessitate much more extensive public-forest ownership than even the present national program contemplates."

The hearings held by the Senate Select Committee on Reforestation in 1923, disclosed that vast areas of forest land were in danger of lapsing into unproductiveness, that where new timber growth has followed utilization of the original stand it is in large part a relatively poor growth—a wild land natural crop produced in the face of many adverse circumstances—and that the future timber needs of the country are not being adequately provided for. Extension of public forest land ownership is not a task for the Federal Government solely, the Chief Forester declares. Some of the eastern states are assuming a substantial responsibility for the maintenance of forest conditions through land acquisition. Protection forests should receive the consideration of almost every state east of the plains, Major Stuart says. If state forests are carefully bought and

skillfully managed they should prove a source of net revenue, and always can be made to render other important public services as recreational areas, protectors of scenic values, and producers of game and other wild life.

A significant development which the Chief Forester reports is the changing attitude of private timberland owners toward forestry. Timber growing is no longer regarded as something outside the range of business consideration. Although private forest management can not at best extend either fast enough or far enough to afford by itself a solution of the eastern forest problem, it must be encouraged by public effort, says Major Stuart. Conditions must be made more favorable for its extension, for what is at stake is the efficient economic use and continuous productiveness of 336,000,000 acres of privately owned forest land in the eastern states alone.

Things necessary to hasten private application of forestry are pointed out by the Chief Forester as: Security against excessive taxation, efficient systems of protection against fire, public research and demonstration of usable practices, and consistent, steady education to win the acceptance of such practices. These are all public functions in which the Federal Government hopes to lead the way.

Fire control is basic, Major Stuart says. Until fire is systematically kept out of the woods, all attempts at permanent use of the land for timber growing must be abortive. The Clarke-McNary law authorizes an annual Federal appropriation of \$2,500,000 for cooperative fire protection on private lands, the private owners, states, and Federal Government cooperating. Federal appropriations thus far have been far below the authorization, and in comparison with the states, the Federal Government is not yet taking its proportionate share of the load.

Yale Studies Timber of Tropics

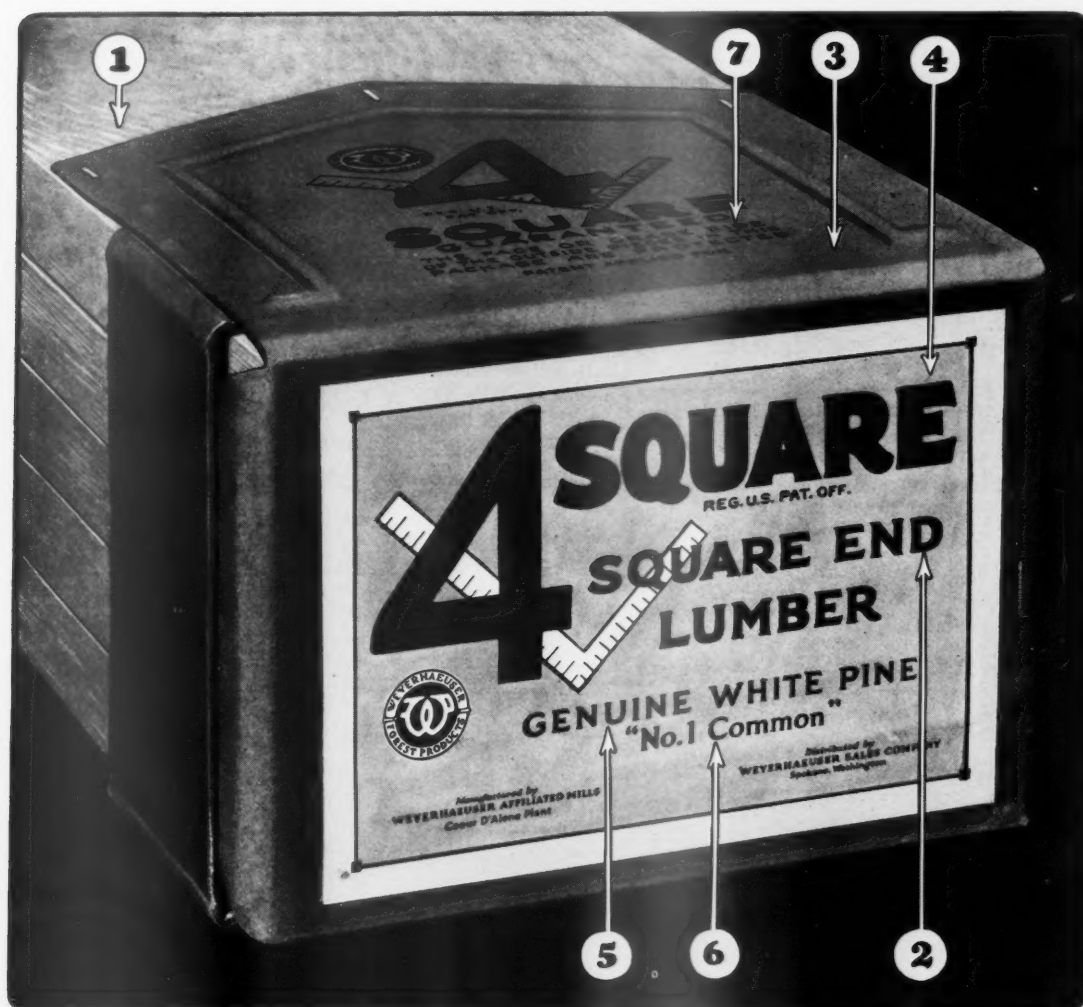
Reporting on the progress of forestry research in the tropics, conducted by Yale University, Samuel J. Record, professor of Forest Products, states that a collection of 14,000 wood specimens, the finest in the world, has been built up since work in this field was begun in 1916. Represented in the collection are nearly 1400 different genera of 160 natural families.

Tropical research, conducted by the university, looks ahead to the time when the shortage of timber supplies in this country will give great impetus to forest exploitation in the tropics, which contain the only remaining large stands of virgin timber. To this end the different regions are being explored and mapped, and authentic information about the location and extent of the forests, the kinds of wood and other products there, and means for their proper utilization, is being collected and disseminated.

The samples serve as a basis for research and as standards with which unknown specimens are compared for purposes of identification. Much effort has gone into their accurate identification, and many new genera are represented. In assembling the collection the university has had the cooperation of persons and organizations on the ground.

Other tangible information, collected and tabulated by the university, includes an accumulation of books, pamphlets, periodicals and manuscripts, unpublished reports, maps, and photographs pertaining to the subject.

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Power Commission Hears Protest of Cumberland Falls Development

The Federal Power Commission on December 5 heard arguments for and against the application of the Cumberland Hydroelectric Power Company for a license for the proposed power development at Cumberland Falls, on the Cumberland River, in Kentucky. After the hearing, the Commission with the Secretaries of War, Interior, and Agriculture took the application under advisement.

Opposition to the application was on the ground that the scenic beauty of the falls should be preserved in a state park, and not be destroyed by the hydroelectric development. John C. Dulin, attorney for the opposition, testified that the people of Kentucky had no fault to find with the plan to develop the resources of the state, but that they had a serious objection to the development of this particular project when other points in the state could be more effectually developed without ruining the scenic and recreational value of Cumberland Falls. Former Governor William J. Fields, of Kentucky, supported the plan to preserve the falls from power development, terming it Kentucky's greatest scenic asset, and declaring that ninety-eight per cent of the people in the state concur in the view that it should be preserved as a state park. A. B. Cammerer, acting Director of the National Park Service, appeared for the opposition and stressed the potential value of state parks. It was also brought out in the testimony that Senator du Pont, of Delaware, who is a native of Kentucky, desired to give \$200,000 for the purchase of the property surrounding Cumberland Falls, for its preservation as a park.

Proponents of the power project, headed by Governor Flem F. Sampson, testified that the development of the falls would be a progressive step, and at the same time enhance the beauty of the falls and provide a state park covering a much wider area than that proposed without the power development. Plans for the project, it was said, provide for a dam eighty feet high and eight hundred feet long above the falls. A highway bridge would be constructed across the top of the dam.

Tree Holds Seed Sixteen Years

Experiments made at Giant Forest, Sequoia National Park, in California, have shown that the Sequoia sometimes retains its cones for sixteen years before they drop and discharge their seed contents, says the United States Forest Service. The seed are preserved from weather and fungi by a powdery pigment which gives them a water-proof and germ-proof gloss. This pigment, when dissolved in water, makes a good writing fluid or furniture stain of a rich maroon color.

Mention AMERICAN FORESTS AND FOREST LIFE—It Helps

Will Kill 2,000 Kaibab Deer

Two thousand deer in the western part of the Kaibab National Forest, in Arizona, will be slain by the Government, and shipped to veterans' hospitals and Indian boarding schools to be used as food, according to R. H. Rutledge, District Forester, at Ogden, Utah. The Forest Service and the State of Arizona have reached an agreement, he said, to this effect. Over-production of deer has been a problem on the Kaibab Forest for several years.

Eleven Indiana Counties Make Reforestation Survey

A survey of eleven counties in southern Indiana recently undertaken by the State Conservation Department, indicates that more than 2,500,000 acres are in need of reclamation by tree planting and fire protection. The survey was made by Ralph F. Wilcox, State Forester, and E. M. Bruner, of the United States Forest Service.

Thirty to seventy per cent of the land area of each county has passed from the field of agriculture to the side of forestry, the department states. In some counties entire communities have left the farms and in such localities county and township roads have become impassable and churches and public schools have been abandoned.

According to the department, reclamation of this idle land through reforestation, *forestry practice and fire protection is now needed on 2,685,000 acres of eleven counties.* This represents fifty-one per cent of the total land area now in some kind of forest cover or abandoned. The counties surveyed are Clark, Floyd, Washington, Crawford, Orange, Dubois, Perry, Spencer, Martin, Green and Lawrence.

National Forest Reservation Commission Approves Purchase of 111,230 Acres

The National Forest Reservation Commission which met at Washington, D. C., December 12, approved the purchase of 111,230 acres of land to be added to the system of National Forests of the nation, authorized by appropriations made this year. The lands approved for purchase are located in fourteen purchase units in eleven States. They are Michigan, Minnesota, New Hampshire, Pennsylvania, Arkansas, West Virginia, Virginia, North Carolina, South Carolina, Georgia and Alabama. The total purchase price recommended amounts to \$296,978, an average of \$2.67 an acre.

The Commission also approved the establishment of six new purchase units. These are in Michigan, Wisconsin, Minnesota and Vermont. At the meeting announcement was made of the resignation of Senator Lee S. Overman, of North Carolina, as a member of the Commission, and the appointment of Senator William J. Harris, of Georgia, to succeed him.

New Forestry Districts in Alabama

Two additional forestry districts comprising a total of 952,320 acres have been added to the organized forest territory of Alabama during September, according to a statement issued by the State Commission of Forestry. The first of these districts includes the extreme southern portion of Chilton County and all of Autauga County except a strip along the southern and eastern boundaries. The second comprises the whole of Dallas County. The districts will be covered by Forestry Agents Frank Avery and W. O. Durbin.

Existing districts in other sections of the State have been enlarged to include additional territory in Calhoun, Clay, Cleburne, Randolph and Tuscaloosa counties amounting to approximately 355,170 acres. This, together with districts previously established, makes a total of 14,687,300 acres to be covered by forestry agents in the cooperative work carried on between the local citizens, the State and the Federal Government.

New England Forestry Congress

To bring together all organizations and individuals in New England interested in forest resources, and to form a comprehensive program for their development for timber production, flood prevention, recreation and fish and game conservation, the New England Forestry Congress will be held at Hartford, Connecticut, February 1 and 2.

Research Council Meets in Florida

The annual meeting of the Southern Forest Research Council was held in Florida, early in November. The council consists of twenty-five members, representing the state forestry departments, the lumber industry, and other organizations interested in the growth and production of southern forests. In addition to several field trips, the council reviewed the development of forest research and discussed plans for 1929.

Foreign Scientists at Madison

The ranks of the foreign scientists working on American wood-utilization problems in the United States Forest Products Laboratory, at Madison, Wisconsin, were augmented recently by the arrival of five men sent by government and private agencies in Australia, Finland, Poland and Sweden.

H. B. Somerset, Melbourne, Australia, will work as a member of the pulp and paper staff of the Forest Products Laboratory for a period of one year before returning to Australia to take a position in a paper mill operating on eucalyptus. C. Ellis, forest economist to the Queensland Forest Service, Brisbane, Australia, will make his headquarters at the laboratory for the next twelve to eighteen months, studying its organization and methods. K. Kuoppamaki, mechanical engineer from Finland, has spent some time

at the laboratory studying the manufacture of plywood. Dr. J. Wiertelak, assistant in the Institute of Chemistry, University of Poznan, Poland, is beginning a year of study at the Forest Products Laboratory on a scholarship of the Polish Ministry of Education. Doctor Wiertelak's studies will be principally on the chemistry of wood.

Carl Gustaf Strokirk, Harnosand, Sweden, is at the laboratory on a grant from the University of Commerce, Stockholm. Mr. Strokirk will remain at the Madison laboratory until May, studying the manufacture of plywood and other wood utilization problems.

Another Woman Forester

With the enrollment of Miss Dorothea Cahill, of St. Paul, Minnesota, the Forestry School of the University of Minnesota has its second woman student. Miss Jane Oakley, of North Carolina, was enrolled as the first.

Loblolly Pine in New Jersey

A plantation of loblolly pine established twenty years ago on the sandy soil of the Bass River Forest in southern New Jersey will now cut more than 5,000 board feet of box boards per acre, Extension Forester Scovell reports, even though the trees are not now closely spaced. Some of the trees are forty feet high and eleven inches through the stem at breast height. These individuals have made an average growth of two feet in height and more than half an inch in diameter for each of the twenty years. Native hardwood stands of the region, growing on the same type of soil, seldom make half that growth.



And Now a Pink Grootendoorst

The Everblooming Rugosa Rose. For mass and hedge plantings—(not for the rose garden). Clusters of beautiful bright pink flowers resembling bunches of pink carnations. Beautiful deep green, healthy foliage. Blooms from early Summer until frost. \$1.25 each.

Two New Oriental Shrubs

Beauty Bush—grows 6 to 8 ft. tall, has clusters of small tubular pink flowers of the honeysuckle type, borne in such profusion that the bush is one cloud of delicate pink—\$2.00 each.

Korean Spirea—a 4 to 6 ft. dome-shaped bush with large rounded clusters of snowy flowers—blooms two weeks later than ordinary Spirea—\$1.50 each.

The Great Rose Tallman. The most vividly colored everblooming Rose ever introduced (yellow and orange). Awarded four gold medals, exceptionally easy to grow—\$2.50 each.

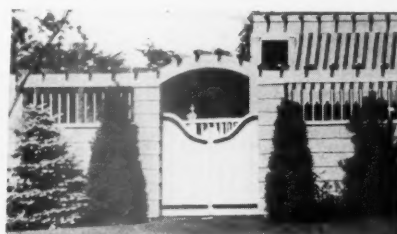
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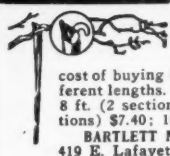
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Better Reindeer Market Conditions

Secretary of Agriculture Jardine will be requested to appoint experts of his department to confer with officials of the Department of Interior on control of an obnoxious fly that punctures reindeer skins suitable for gloves and reduces their market value.

This resulted from a conference recently held by Secretary West, of the Department of Interior, attended by Carl J. Lomen, President of the Alaskan Reindeer Corporation, and Leonard and Arthur Baldwin of New York. The Secretary also considered the possibilities of extended cooperation between the Government-owned Alaska railroad and the reindeer interests in opening up a market for 10,000 or more reindeer carcasses annually. Consideration was also given the plan to drive groups of reindeer from a herd of 150,000 more than 250 miles to near Summit or Cantwell, on the Alaskan Railroad, from the Nome district to facilitate marketing. At present, it was explained, reindeer in the Nome district can be killed only in November and December, and the meat must be kept for several months under refrigeration before marketing as the northern Alaska port is ice-locked for many months. By quartering the reindeer in the broad pass section, with suitable inclosures, officials pointed out that an extensive outlet would be available on the Alaska Railroad for shipment by rail to Seward, thence by steamer to the United States.

G. B. Shipley Appointed to Wood Utilization Committee

Grant B. Shipley, president of the Century Wood Preserving Company, Pittsburgh, Pennsylvania, and of four other wood preservation plants in New England, Michigan, Ohio and Pennsylvania, has been appointed a member of the National Committee on Wood Utilization, Department of Commerce.

Mr. Shipley has been prominent in the wood preservation industry for many years. For a quarter of a century he has designed and operated wood preservation plants, and has been retained as a consultant in connection with nearly half of all the wood preservation plants in operation in the United States today.

Asks More Shore Parks for Connecticut

At the meeting of the Connecticut Forest and Park Association on the Natchaug State Forest, Hampton, Connecticut, H. H. Chapman, of the State Park Commission, made the statement that although Connecticut was making commendable progress in building up a series of State Forests for the production of timber, the protection of watersheds and the propagation of fish and game, it was behind in the acquisition of park lands along the shore. Its one active shore park at Hammonasset Beach, he declared, served over half a million people a year.

Other speakers were J. A. Gibbs, of the Connecticut Agriculture College, who spoke on the possibilities of the practice of forestry by farmers who own land not suitable for crops. Colonel T. S. Woolsey, President of the Association, urged all land owners to practice forestry on their lands. Benton MacKaye, speaking as a city planner, declared that the development of public parks and forest roadside reservations and the like was as necessary for the development of beautiful and prosperous cities as the purely architectural aspects of city planning.



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Douglas Fir 10 to 12 in.**	35.00	300.00
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Satin Moth Spreads in New England States

The area under quarantine on account of the satin moth, an insect injurious to poplars and willows, has been enlarged to include for the first time territory in Vermont as well as additional territory in Maine, New Hampshire, Massachusetts and Connecticut, according to the United States Department of Agriculture.

On account of the practical impossibility of satisfactorily determining by inspection whether poplars and willows are free from satin moth infestation, due to the habit of the caterpillars of hibernating in inconspicuous webs on the bark of the trees, the regulations under this quarantine prohibit the "interstate movement from any point in the regulated area into or through any point outside thereof of poplar and willow trees, and parts thereof capable of propagation."



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RHODODENDRON SEEDLINGS—8 to 24 inches; 100 for \$10.00
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Norway spruce, 4 to 8 in. high
Scotch pine, 6 to 8 in. high
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25 of each variety, all for \$3.50
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THE AMERICAN FORESTRY ASSOCIATION
Washington, D. C.

The Forest Post-Bag



So many letters of interest drop out of our mail bag each morning that the editors have decided to be generous with some of them. So—watch for the Forest Post Bag, learn what "they" think, and share our pleasure and profit. Comment on this column is invited.



Miss Isabelle Horn, of South Pasadena, sends us the following, from the *Los Angeles Times*:

"Voice from ether comes as warning—some said it was coincidence; others said it was a master lesson by fate, and still others asserted it was Mother Nature warning for the loss of a child.

"Anyway, this is what happened. "Permission was given a business man to chop down a stalwart old pine tree in front of his place of business in Upland because it obstructed his view. Across the street from the old pine is a radio shop. Just as the majestic monarch, which had been growing in the same place since Upland was born, groaned and toppled to the ground, the radio across the street switched to another number on the program and the deep, bass voice of a singer in a broadcasting station—somewhere in the United States—hurled this admonition to those who took the life of the tree: 'Poems are made by fools like me, but only God can make a tree.'"

The following is taken from a letter signed by one of a family of wilderness enthusiasts—Winton Weydemeyer, of Fortine, Montana, and speaks for itself:

"To a nature-lover living out here in the vast western forests and lumber woods, where fires destroy thousands of acres of virgin timber and render the hills unfit for habitation by native birds and animals; where forest insects thrive and thereby destroy; where excessive timber wastage in manufacturing is complacently accepted as an economic necessity; where game laws are too commonly disregarded; where commercialization of scenery, wildness, and similar natural resources belonging to the people steadily robs the wilderness lover of his opportunity for enjoyment and appreciation of back country—to a nature-lover constantly in this environment the work of The American Forestry Association stands as a stimulating promise that more desirable conditions are coming and as a reassurance that thousands more of similar-minded men and women are engaged in the fight for sensible

and unselfish use and preservation of all natural America. To me it seems that the opportunity for widely scattered people to unite in a great undertaking such as this Association is pledged to, forming thereby a concert of great and effective influence, is one of the happiest privileges afforded by our democracy. I hope always to respect this privilege in my membership in our organization by doing whatever I can to help achieve its purposes."

E. E. Pershall, vice president of a great timber company with headquarters in St. Louis, writes:

"Please refer to your September issue, page 516. Simply as a picture of a fine stand of timber, I am writing to ask you if it would be possible for me to obtain this photograph in a size about 8x12, that I could have framed for my office. In order that you may appreciate the attitude of mind that prompts a man engaged in selling timber to stop and simply admire a fine tract of timber without any desire for converting it into useful products and the selfish gain that might come therefrom, I am sending you under separate cover a copy of Romeyn B. Hough's book on North American Trees, with an insertion on our own business that might prove of interest."

An eminent expert on insects and a forest entomologist of repute, H. B. Pierson criticizes constructively in a letter from Augusta, Maine:

"A question recently printed in the magazine has to do with the white-pine weevil. In the answer the statement is made that every three or four years the weevil gets the upper hand. I have made a pretty careful study of the weevil for eight years, and am convinced that the weevil is becoming increasingly prevalent each year. From the study I have made parasites are a negligible factor.

"Sometime I would like to see the policy of The American Forestry Association broadened to include 'adequate protection from insects and disease' along with its fire-protection policy. This should, in my mind, also be included under subjects to be considered for forest research."

Need of Wild Life Refuges Stressed by Biological Survey

The need of game and bird refuges was stressed by Paul G. Redington, Chief of the United States Biological Survey, in his annual report to Secretary of Agriculture Jardine, as being without doubt the greatest single factor in successful wild-life administration. Emphasis was also placed on wild life research as being fundamental to all other functions of the bureau and basic to the chief service expected by the public.

Mr. Redington mentions as outstanding among the accomplishments and new lines of work undertaken in research during the year, the following: Inauguration of studies of the relative abundance of migratory wild fowl from year to year, through systematic and repeated censuses taken by cooperators on important waterfowl concentration areas. Authorization by congressional act of more extended research having to do with the relations of wild life to forestry—the effects of birds, mammals, and other forms on forest production. Successful crossbreeding of Alaskan reindeer with native caribou captured for the experiments, and the birth of fawns of materially increased weight. Progress in research work on the food of the English sparrow, in studies of the requirements of the Wyoming elk, in the administration of other game animals and birds on reservations, and in coordination of state and Federal policies in wild-life administration generally.

Important measures mentioned for the welfare of wild life are the authorization by Congress of a refuge for migratory birds in the extensive Bear River marshes, Utah, and first steps in its administration, as an aid to conserving the wild-fowl resources of the west; and greater expedition in the work of acquiring lands for the Upper Mississippi River Wild-Life Refuge through congressional aid and through private donation of areas important to the purposes of the refuge.

Of importance to cooperative work for the control of wild-animal pests of agriculture, horticulture, forestry, stock-raising, and wild game was the development, through a conference of field leaders in rodent and predatory-animal control at Ogden, Utah, of improved plans for research work and definite policies in local and general control operations.

Seven Federal conservation laws are listed that are administered by the Biological Survey, including the migratory-bird treaty and Lacey Acts, and, by cooperation with the Alaska Game Commission, the Alaska game law. "Respect on the part of sportsmen and the public in general for Federal and state laws for the conservation of wild life," says Mr. Redington, "is increasing from year to year, and United States district courts and district attorneys have continued their interest in the enforcement of the regulations. There are still too many hunters who will violate the law whenever opportunity is afforded."

Wilderness Areas in Rockies

Forty-two separate tracts in the Rocky Mountains, covering several million acres, have been set aside as wilderness areas, according to the United States Department of Agriculture. These areas have been selected as lands in which natural forest conditions should be preserved, either for scientific or for recreational purposes. In thirteen small areas on the National Forests of Colorado, Wyoming and South Dakota all forms of commercial or recreational use are prohibited in order to provide opportunity for scientific observation and research. One wild, inaccessible area of 1,000,000 acres on the Washakie National Forest, in Wyoming, is closed to commercial use and dedicated to recreation. The remaining twenty-eight areas, comprising 2,451,020 acres, will be kept in a wild state.

Summary of Fur Laws Available

The legislatures of only Kentucky, New York and Virginia made changes in laws relating to fur-bearing animals this year, according to the United States Biological Survey. Kentucky reduced the fee for non-resident trappers. New York imposed requirements for the stamping of traps and for frequent inspection. Virginia rescinded powers heretofore conferred upon county boards with respect to game matters and vested them in a commission, and also set a state-wide trapping season. Administrative changes were made in Alaska, Arkansas, North Carolina, and Pennsylvania. In Canada changes in fur laws were effected in Ontario, Quebec, British Columbia, Northwest Territories, Saskatchewan, and Yukon.

A summary of the laws in all states and in Canada, including the prevailing requirements as to open seasons, bag limits, prohibited methods, licenses, possession and sale of animals and furs, shipment and export, propagation, and bounties imposed by the regulatory authorities, or by law, is presented in Farmer's Bulletin 1576-F.

Reports Progress in Pulp and Paper Industry in Alaska

Early construction of hydroelectric units for the development of the pulp and paper industry in Alaska is anticipated in the annual report of the Governor of Alaska. Surveys by commercial companies awarded contracts in the Territory for this development are being carried forward rapidly, the report states.

According to the Governor, engineers have estimated that the forests of Alaska can produce 1,300,000 tons of newsprint annually in perpetuity and there is available more than 500,000 undeveloped horsepower within reach of the timber resources. These timber tracts, recently awarded to commercial companies for development, are on the Tongass National Forest, in southeastern Alaska.

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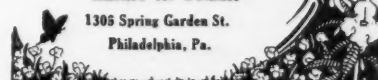
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Book News



and Reviews



OUR FEDERAL LANDS. By Robert Sterling
Yard. Charles Scribner's Sons, New York.
Price \$5.

Our federal lands, which is to say the
lands owned collectively by the people of
the United States, if blocked up and fitted
into the northeastern section of the Union
would cover all the states east of the Mis-
sissippi River from the Canadian line on the
north to the southern boundaries of Ten-
nessee and South Carolina.

"An Empire," exclaims Robert Sterling
Yard in his new book, "Our Federal Lands."
To envision these vast and scattered hold-
ings in their social, economic, and historical
settings is a task which few would have
the hardihood to undertake. But Mr. Yard
has done the task and done it well. He has
told the story of our federal lands, whence
they came, how they have shrunk in area
but have grown in usefulness, and how they
are taking definite form and place in our
social and economic progress. It is an in-
teresting story of facts, logically marshaled
and told in simple, readable language. Here
one will find the past, the present, and a
glimpse into the future of the Public Domain,
the National Forest, the National Park, the
wild life reservations, and all the far-flung
lands that go to make up our National
estate.

From the story and its telling one visions
the whole in a perspective that inspires pride
and patriotism. For our national estate is
a national heritage, which once known and
understood inspires not only patriotism but
better citizenship. "Our Federal Lands" is
a story which every true American—man
and woman, boy and girl—should know.
They are his lands and by his intelligence
will their preservation and usefulness be
measured.—O. M. B.

WASTE NOT—WANT NOT. By Scoville Ham-
lin. Published by Dorrance & Company,
Philadelphia. Price \$2.

The author tells in clear and lucid terms
what it means to waste natural resources and
how through the stabilization of production
and the control of expansion the nations of
the world may keep the causes of war in
abeyance. The dire results of waste of
natural resources as represented by forest
devastation, erosion and flood, soil loss and
the reckless use of minerals are set forth

clearly and interestingly as involving the
well-being of millions and, in fact, the whole
future of mankind. Mr. Hamlin urges the
proprietary interest of the individual in the
results of production as the surest way to
conserve the natural capital resources of the
world—the idealization of the job through
the introduction of altruism. This element,
heretofore more or less lacking, will—the
author says—make of each workman an ar-
tisan in his own right and free him to real
joy in labor. It will as well give him an
understanding of the real factors underly-
ing prosperity and progress, accrue to him
incalculable individual advantages and
create new incentives tending to the eventual
elimination of waste.—L. M. C.

THE LAKE OF THE SKY—LAKE TAHOE, "See
America First Series." Published by L. C.
Page and Co., Boston, Massachusetts. \$5.00.

Lake Tahoe, located in the High Sierras
at an elevation of more than six thousand
feet, partly in California and partly in Ne-
vada, is one of nature's greatest gifts to
North America. When the day is calm there
is a band of deep green around the border
of the lake, as if Mother Nature had lined
the bed of the lake with a mosaic of tiny
pieces of the copper ore which is so commonly
found in that region. Inside this band of
green, is another of bright blue and still
farther from the eye the blue deepens to
dark purple. While gazing at the grandeur
of the lake one is constantly reminded that
the designer of such a chef-d'oeuvre pos-
sessed more than human qualities. Because
the water of the lake is so clear, "living
water" as Thomas Starr King put it, one
can scarcely believe that its depth here is
more than two inches, or there, more than
six inches, whereas in reality it is twenty to
fifty, or more, feet from the eyes of the be-
holder to the mosaic lining of the lake-bed.
One's education can be neither liberal nor
complete until one has drunk in the beauty
of Lake Tahoe.

This book is written in an easy and in-
teresting style. The lake's history of dis-
covery by the white man, the legendary lore
ascribed to it by the Indians, its physical
and geologic characteristics, its numerous
trails and resorts, descriptions of nearby
places of interest, and the forests and natural
life found in the region are enlarged upon—
A. E. D.

BIBLIOGRAPHY ON WOODS OF THE WORLD. By Major George P. Ahern and Helen K. Newton. Published by the American Society of Mechanical Engineers. 1928. 77 pp.

Under headings for the principal countries of the world one may find references to practically all of the books and articles which contribute to a knowledge of the woods of the world.

FLOODS IN THE VALLEY OF THE MISSISSIPPI. By J. P. Kemper, C. E. Published by The National Flood Commission, New Orleans, Louisiana. 255 pp. Price \$2.50.

Less than two years have passed since the country was stirred by the last great Mississippi flood, yet a summary of events which accompanied and followed the disaster reads like history. We need to be reminded of them and of the discussions which arose while considering the various control plans.

More will be accomplished by "Floods in the Valley of the Mississippi" if Mr. Kemper achieves his purpose of pointing the way by which the excess waters of half a continent can be poured into the sea without loss of life or undue loss of property.

Briefly, his plan is to hasten the water out of the lower river through the Atchafalaya River and through spillways below Baton Rouge; and to hold the crests of the floods back in reservoirs above the mouth of the Red River. Without abandoning the present levee system, he would encourage secondary defenses in the form of reservoirs, terraces on farm land, and extended areas of forest. These would help hold back the flood waters and maintain a navigable channel during low water.

The book is a vigorous voice protesting against the more generally recognized plans of the Corps of Army Engineers and The Mississippi River Commission.—G. H. C.

Under date of December 14, 1928, the Mississippi Forestry Commission has put out an attractive Arbor Day Program. Here are presented a small collection of forest poems and songs which combine to offer suggestions to any one who is planning a tree planting ceremony.

DEFORESTED AMERICA. By Major George P. Ahern. Privately published. Price Twenty Cents.

"Deforested America," a pamphlet of seventy-seven pages, is, as its title suggests, a picture of the forest situation in the United States today as seen by the author, whose conclusions are based upon a study of available information from widely different sources. The booklet, if one is to judge from the author's introduction, is designed primarily for the man in the street who doesn't know the facts.

"If he knew the facts," declares the author, "they would speak for themselves. They are here brought together as they have been established by the foremost authorities on the subject in America."


In the first chapter, the author presents information bearing upon the important factors in our forest problem, such as the remaining stand and distribution of virgin timber and second growth; annual depletion of our forest resources; logging practice, forest protection, cost of production, market conditions, and the attitude of government authorities toward the forest products industry.

In the second chapter, he deals with industrial forestry, quoting many authorities to show the extent to which private forestry is actually being practiced in the United States.

Chapter three is a general summary of the author's conclusions, which, expressed in a few words, is that forest devastation is going forward in this country at an appalling rate, that neither the industry nor the Federal Government are measuring up to the task of controlling logging practice and fire protection, and that the industry is attempting to mislead the public as to the true situation.

"The forest situation," he declares, "so menacing to our national prosperity, even involving our national defense, calls for aggressive leadership by the men our country holds responsible for the conservation of this great natural resource. The foresters, for more than twenty years familiar with forest conditions from Maine to California, have duly reported the facts to headquarters at Washington, but there they lie. The foresters at headquarters should be held responsible. They have fallen down on the job in failing to get the real facts to the people, not through the medium of dry government bulletins, but on the front page of metropolitan dailies."

Major Ahern's conclusions suggest his belief that forest devastation in the country will not be stopped until the strong arm of the government is used to stop it. His arraignment of the lumbermen and the Forest Service in some of his conclusions will naturally be questioned, but it is the expressed hope of the author that the booklet will start discussion from which aggressive and constructive action may result. The introduction of the pamphlet is written by Gifford Pinchot, who declares that the forest situation has been winked at for the last ten years, and that little or nothing that counts is being done about it. He charges the lumber industry with spending millions of dollars in an effort to forestall public control of lumber, which, he declares, is "the only measure capable of putting to an end forest devastation in America." The booklet may be obtained by addressing "Deforested America," 1617 Rhode Island Avenue, Washington, D. C., and the price is twenty cents per copy.—O. M. B.



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CHAS. H. BURKE,
Commissioner.

Washington, D. C., November 14, 1928.

Write to Service Department
The American Forestry Association
Washington, D. C.
For any information you may want

Trees of the Bible

(Continued from page 15)

people with thy rod, the flock of thine heritage, which dwell solitarily in the forest in the midst of Carmel. Let them feed in Bashan and Gilead, as in the day of old (Micah 7:14).

A rough, rocky place, overgrown with trees, principally the oak, was a *yaar*, *vaar* in Arabic, a terebinth *yaar* never being known to exist. The forest of Ephraim was such a place. So thick was the growth of trees in this forest that it devoured more people than the sword that day Absalom made war against his father. Indirectly, it caused Absalom's death, for the mule upon which he rode when he became frightened at sight of his father's servants before him, went under the thick boughs of a great oak, and the long bright locks of Absalom's head caught hold of the oak, and he was taken up between the heaven and the earth; and the mule that was under him went on and left him hanging there, for Joab's darts (2 Samuel 18).

(The land that achieved the fir tree and the cedar tree, the oak and the tamarisk, also produced the tall and solemn date palm, often referred to in the Biblical narrative of the Old Testament as the "upright" tree, and the "goodly" tree. In the February issue Miss Borah will deal with the palm tree, the pomegranate tree, the kharub, or St. John's Bread tree, and the willow tree).

ERRATA

In the January issue it was stated in a caption describing the Cedars of Lebanon, in the first of the series of "Trees of the Bible," that the last of these famous trees

were cut for firewood during the World War. The Editor has been advised, however, from Charles E. Dickerson, Jr., Commercial Attache at Jerusalem, that "the Cedars of Lebanon have dwindled to a small grove of approximately 150 trees," and that "the grove, now referred to as 'The Cedars' has been enclosed by a wall inside of which a hotel has recently been erected."

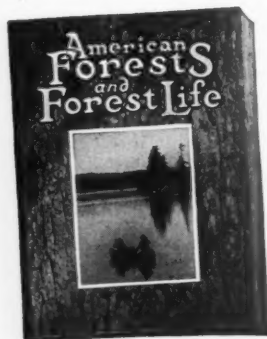
Outdoor Christmas Tree Association Organized in California

Stating as its objectives the planting and caring for outdoor living Christmas trees by children, and the preservation of the forests of California, the Outdoor Christmas Tree Association of California was recently organized at San Francisco. Clarence F. Pratt, president of the Pratt Building Material Company, of San Francisco, is President of the organization; Robert H. McCreary, an attorney, of Oakland, Secretary; and R. D. Brigham, vice-president of the Anglo-California Trust Company, of San Francisco, is Treasurer.

Among the directors are Harvey S. Bissell, President of the Conservation Association of Southern California; R. C. Black, Secretary, California Forest Protective Association; John Cuddy, Executive Head of Californians, Inc.; Guy Fleming, Torrey Pines Preserve; E. I. Kotok, Director, California Forestry Experiment Station; John McLaren, Superintendent of Golden Gate Park; M. B. Pratt, State Forester of California; S. B. Show, District Forester, United States Forest Service; and Fred G. Stevenot, Director, Department of Natural Resources of California.

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January, 1929

Pinchot Advocates Control of the Ax

Gifford Pinchot, in an open letter dated November 28th, written to many different agencies throughout the country, declares that the forest situation in America during the past decade has been winked at or overlooked in most public discussions of the subject. "The fact is," declares Mr. Pinchot, "that our forests are disappearing at a rate which involves serious danger to the future prosperity of our country and that little or nothing that counts is being done about it."

Mr. Pinchot's letter appeared as a comment on a pamphlet just published by Major George P. Ahern, entitled "Devastated America." This pamphlet, which is reviewed elsewhere in this issue, is an analysis of the present forest situation. Mr. Pinchot's letter in full is as follows:

"For the last decade and more the essential fact about the forest situation in America has been winked at or overlooked in most public discussions of the subject. This fact is that our forests are disappearing at a rate that involves most serious danger to the future prosperity of our country, and that little or nothing that counts is being done about it.

"Out of 822,000,000 acres of virgin forest only about one-eighth remains. Half of that remaining eighth, roughly speaking, is held by the Government and is safe from devastation. The rest is being cut and burned with terrible speed. And there is nowhere in the world anything like a sufficient supply of the kinds of timber we use to take the place of what we have destroyed.

"The foregoing statement is taken from the introduction to a pamphlet by Major George P. Ahern, entitled "Devastated America," which I am sending you under separate cover. Major Ahern established the Philippine Forest Service, organized the protection and utilization of forty million acres of public timberlands, and not only laid the basis for a perpetual succession of timber crops, but earned cash enough to pay all the expenses of administration, all the expenses of the Philippine Forest School (which he founded), and four million dollars to boot for the public treasury.

"This outstanding success in forest conservation in the Philippines was built on Government control of lumbering. That is and has always been the foundation of such success throughout the world. And throughout the world the right of the Government to exercise such control in the public interest is recognized. Forest devastation in the United States can not be stopped without it.

"Forest fires are steadily growing worse in America, and fire prevention is absolutely indispensable. But the ax carelessly used is the mother of forest fires. The ax and

not fire is our greatest danger. Until the ax is controlled there can be no solution of the fire problem, or of the problem of forest devastation.

"Over the National Forests, which cover one-fifth of our ultimate possible timber-growing area, we have established Government control of the ax. These forests are safe, they are well handled, and they will produce larger and larger crops of timber as time goes on. Over the other four-fifths of our forest land the ax holds unregulated sway.

"Either we must control the ax on these privately owned lands, or the forests that are left will follow the road of those that are gone already.

"The lumber industry is spending millions of dollars on propaganda in the effort to forestall or delay the public control of lumbering, which is the only measure capable of putting an end to forest devastation in America. It is trying to fool the American people into believing that the industry is regulating itself and has given up the practice of forest devastation. That is not true, and Major Ahern has proved it beyond question in his most valuable paper. We are still sowing the wind, and the whirlwind is not far off."

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BEFORE



AFTER

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Public Forest Idea Spreads in New York

The rapid spread of the community forest idea in New York is shown in figures compiled by the State Conservation Commissioner. In the last two years the number of municipal or community forests has increased from 217 to 317, showing an average yearly increase of fifty or at the rate of about one new municipal forest project initiated each week. In the 317 forests already started by counties, cities, towns, villages and school districts there have been planted 20,817,500 trees of all the varieties supplied by the state nurseries.

During the present year twenty-four new village forest projects have been initiated, twelve new school district forests, four county forests, three town forests and one city forest and the first plantations made aggregating 596,000 trees. The purpose of all these forests is to make profitable use of idle, non-agricultural land, and a number of the earliest plantations are now thriving forests.

Los Angeles County Reports Great Progress in Forestry

The two outstanding features of the Los Angeles, California, County Forestry Department for 1928, according to their annual report, have been the development of roadside planting and an expansion of a reforestation policy.

Trees planted by the department along major highways and residential streets in the unincorporated sections of the county of Los Angeles, exceed by four times the number planted in 1927. In addition more than 4,000 roadside trees were planted by private parties, far surpassing the number planted in this manner in 1927. Forestry developments in the county were along the lines of planting, trimming, maintenance, nursery and experimental work.

WHO'S WHO

Among the Authors in This Issue

FREDERICK L. COE is not only an ardent outdoorsman but Park Engineer of the city of New Haven, Connecticut, his native state. He was graduated from Yale University in 1906, and was one of the engineers who constructed the famous Yale Bowl. During the World War he served as captain of a construction company in a Division of Engineers, and for several years was on the editorial Staff of *Outing*. He is the author of many interesting outdoor and nature articles and stories.



FRANKLIN W. REED is Industrial Forester for the National Lumber Manufacturers Association, Washington, D. C., and is engaged in a comprehensive study of commercial forestry conditions in the eastern States.

W. B. BELL is Chief of the Division of Biological Investigations, United States Biological Survey, and is in charge of reindeer grazing investigations and the reindeer experiment stations in Alaska. He was at one time Professor of Zoology at the University of North Dakota, and served at the Research Zoological Station at Naples, Italy.

HUGH HAMMOND BENNETT is one of the outstanding scientists in the United States Bureau of Chemistry and Soils, Washington, D. C., and has long been engaged in scientific and practical studies of the soils of this and other countries. In recent years he has devoted much of his time to an investigation of soil losses as the result of erosion on unprotected areas.

W. C. McCORMICK is Regional Director of The American Forestry Association's Southern Forestry Educational Project in Florida, Georgia and Mississippi. He was formerly Assistant State Forester of North Carolina.

STEPHEN T. MATHER is Director of the National Park Service; **LILIAN M. CROMELIN** and **ERLE KAUFFMAN** are Assistant Editors of *AMERICAN FORESTS AND FOREST LIFE*; **ADELAIDE BORAH** is a research specialist and writer of Washington, D. C.; **ROBERT MARSHALL** is on the staff of the Northern Rocky-Mountain Forest Experiment Station, Missoula, Montana; **HOLLIS B. FULTZ** is from Aberdeen, Washington; **F. J. CLIFFORD** from Medford, Oregon, and **RUEL MCDANIEL** from San Antonio, Texas.

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Director

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FRANKLIN MOON, Dean

FIRE PROTECTION

OUTSIDE the city limits—in the forests—in the camp or in the small town—where heavy apparatus cannot be used and there are no hydrants—these are the places where Pacific Portable Pumpers are working. They fill the gap in protection between the cities and protect the countryside. Watersheds, forests, communities, and estates may now be as efficiently equipped and well protected with these portable pumpers as New York City, with the largest fire department in the world.



THE PACIFIC TYPE "N" PUMPER complete forms a well-balanced, light-weight pack, is easily transported by one man. The load is so arranged as to equally distribute the weight while carrying.



THE PACIFIC NORTHERN, or Type "N," Pumper has by far the highest efficiency with the lowest actual weight of any of the leading portable units now on the market. Competitive tests for "weight efficiency" show this remarkable pumper, with a weight of only 70 pounds and a pressure of 150 pounds per square inch at the pump, to have no competition.

The PACIFIC NORTHERN PUMPER, at 150 pounds pressure, will put water to the top of a 345-foot hill through 1½-inch rubber-lined hose.

Working at lower pressures, there will, of course, be an increased volume of water. At higher pressures (the pumper is capable of pressures up to 200 pounds) the volume will be proportionately less.

Designed to fit the ranger's standard pack saddle, the weight is so nicely balanced and equally distributed for transporting that there is neither drag backward nor weight thrown forward in carrying.

This outfit meets every requirement of a pumping unit intended for the most strenuous fire-fighting service. Fulfilling these requirements, it is evident that it becomes a practical pumping unit for intermittent or continuous pumping of any non-corrosive liquids—hence an ideal plant for construction work or similar service.

There is a type and size for every purpose. Our Fire-Fighting Equipment Division will be glad to figure with any problem and advise the proper unit for the particular need.

ADDRESS—

PACIFIC MARINE SUPPLY COMPANY

Fire-Fighting Equipment Division, SEATTLE, U. S. A.

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